

# **CUSTOMER REWARD PROGRAMMES AND CUSTOMER LOYALTY IN A GERMAN AGRIBUSINESS**

by

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## **Thesis**

Submitted in partial fulfilment of the requirements for the Degree of  
Doctor of Business Administration

**EDINBURGH BUSINESS SCHOOL**

Heriot-Watt University, Scotland

May 2015

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## **Abstract**

This research addressed the benefits of the introduction of a customer reward programme in the German agribusiness industry. It analysed whether such a reward programme improves a company's competitive advantage. Customer loyalty, revenues, profit contribution and acquisition of customer information were identified as relevant parameters to contribute to the research objective. The samples were taken from customers of a world leading company in the agribusiness industry with about 28.000 employees.

Interviews were conducted to gather information on above mentioned parameters. 2.500 customers and leading marketing people of the sample company delivered relevant information during these interviews. On top of that databases and official government statistics were used. Regarding customer loyalty a net promoter score was calculated for members and non-members of the customer reward programme of the sample company. A Likert scale was used to calculate a net promoter score to make a judgement on customer loyalty. Using a Likert scale for this kind of analysis presents a novelty to the research community. For the other parameters (revenue and profitability) a significance test was performed for members and non-members as well. For profitability considerations market shares had to be analysed. The analysis of market shares was done for the sample company but also for main competitors with a significant association between membership in a customer rewards programme and size of the market share. The customer information parameter was analysed using qualitative interviews with leading marketing people of the sample company and official databases.

As a result significant associations between membership in the programme and the individual parameters were identified. This led to the conclusion that the introduction of a customer reward programme is worthwhile in the German agribusiness industry and it was concluded that there is most likely a general pattern behind these findings. Based on the research results a company is advised to introduce a customer reward programme especially if competitors have already done so.

...to my beloved son

*Julius Xaan*

## **Acknowledgements**

I would like to thank everyone without whom the project presented in this text would not have been possible.

First of all I would like to express my very great appreciation to Professor Stephen Carter, who has been my supervisor right from the beginning. He provided unique support and was always there to answer my questions but also gave many impulses by questioning my work. He also gave a lot of personal support and motivation in times when working on the project was difficult.

Another important party are the people at the sample company. Above all I would like to mention Axel Voss and Michael Escher, who gave permission to approach customers of the sample company and use company resources to conduct the research. I am also grateful for the opportunity to use the third-party service company that works for the sample company for conducting interviews with the customers. It enabled me to ask many more customers compared to the approach without this service provider. Patrick Sheridan and René Schlachter gave valuable support by answering my questions on the programme.

It also needs to be mentioned that the organisation of the DBA programme by the university and its staff was always perfect. The right tools and processes to conduct the research and to stay in touch were provided. I can strongly recommend this programme to anyone who intends to study for a DBA.

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## List of abbreviations and explanations of terms

Term	Name / Explanation
B2B	Business to business
B2C	Business to consumer
CLV	Customer Lifetime Value
CRM	Customer Relationship Management
EUR	Euro currency
Ha	Hectare
K	Kilo = thousand
No.	Number
p.	Page
pp.	Pages
ROI	Return on Investment
SOW	Share-of-wallet
SPSS	Statistical Package for the Social Sciences
Vol.	Volume



## Glossary

Term	Name / Explanation
B2B	Business to business – relationship between at least two companies
B2C	Business to consumer – relationship between a company and a consumer
Benefit	Customer reward programme members privileges that are not available to non-members
Competitive Advantage	“Competitive advantage enables businesses to survive against its competition over a long period of time by continuously developing existing and creating new resources capabilities [...]” (Darrell 2009)
Customer equity	Determines the total value of a customer. Not only quantifiable value in monetary terms but also including soft factors such as referencing value (Blattberg & Deighton 1996)
Customer lifetime value	The value of a customer relationship during the existence of a relationship with this customer which is concerned about customer profitability (Blattberg & Deighton 1996)
Customer loyalty	“[...] means customers are willing to repurchase and recommend the business to other people.” (Liu 2008). From a more attitudinal aspect it means that a customer has a positive attitude towards a brand (Peppers and Rogers 2011).

Customer relationship management	Strategic approach for planning and managing all interactions with a customer. See also Ang & Buttle 2009
Customer reward programme	A programme that allows consumers to accumulate free rewards when they make repeated purchases with a firm. Such programme intends to foster customer loyalty over time (Liu 2007)
Return on Investment	Quotient of a financial income parameter and capital employed
Segmentation	Grouping of customers or markets into logical groups sharing attributes that potentially respond equally to different marketing mix elements (Kotler 2003)
share-of-wallet	Indicates the monetary proportion of a firm with a customer compared to the total turnover of that customer within a certain product category (Kreutzer 2009)

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# **1 Introduction**

Customer reward programmes are nowadays widely accepted in many industries. Research on customer reward programmes has been conducted mainly in business-to-consumer relationships. Such relationships can be found in supermarket chains, the airline industry, hotel businesses or retail banking. Dowling and Uncles (1997) argue that the main reason for developing a customer reward scheme is competitive considerations. An increase in customer loyalty and an improved relationship between company and customer is an intention of customer reward programmes (Bolton, Lemon & Verhoef 2004). There are also different studies in B2B settings that found a positive correlation between customer satisfaction and customer loyalty (Lam et al. 2004; Helgesen 2006). Based on these prior research results and on the finding that promotional activities have a potential effect on customer satisfaction (Donaldson & O'Toole 2007) it can be concluded that a customer reward programme also has an effect on customer loyalty. A study made with a multi-firm loyalty programme involving a large European retailer confirmed a positive association between customer loyalty and revenue (Evanschitzky et al. 2012). Yi and Jeon (2003) confirm that there is little empirical research on whether reward programmes are perceived as valuable by their members and to which extent they actually contribute in terms of building brand loyalty. The same study revealed that there is also little research on the variables that influence the relationship between loyalty programmes and customer loyalty (ibid.). The analysed literature base will be described in detail in chapter 2 “Literature review” and its subsections. The specific literature on customer reward programmes will be described starting from section 2.3 “Research on customer reward programmes”. In addition to the sources mentioned in the literature review more current literature was reviewed. These studies however are extensions or modifications of the foundational work done by the authors mentioned in this text. Therefore the initial ground work as a basis for this study is mentioned in the literature review. Main authors are Leenheer et al. 2007, Yi and Jeon 2003, Reichheld, 2003, Reichheld, & Markey 2011 and Dowling and Uncles 1997. A more recent Study by Yoo and Bai (2013) confirms the importance of the literature mentioned above when they for example declare the works of Reichheld as “one of the most essential theories of loyalty marketing”. No study has ever evaluated

customer reward programmes in the agribusiness industry in Germany, which confirms the knowledge gap that is sought to be filled with this research. Further reasoning and justification for conducting this research can be found in sections 2.3.2 “Research rationale” and 2.4 “Summary and gaps identified”.

A rare opportunity to conduct such research was provided since the researcher was able to gain access to the German operations of a leading company in the agribusiness industry and its customers. The sample company is one of the biggest companies in this industry with a worldwide presence and more than 28,000 employees. In the industry concerned in this research there are many different types of promotions, such as free samples, price-off offers and payment terms offers, and fairs and exhibitions. Customer reward programmes are only one item of the marketing mix and are widespread in the industry. In fact all the big market players offer their own customer reward programme to the market. The difference to other industries and especially to the consumer market is that none of the programmes are multi-partner programmes, meaning that rewards can only be obtained by buying from one particular company.

The research presented in this study analysed the parameters that are identified to potentially be affected by a customer reward programme. In this thesis these are called success parameters. Customer loyalty, revenue development, customer profitability and customer information acquisition were identified as such success parameters based on the literature analysed. The research question therefore asks:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

Based on the literature analysed and the gaps identified the aim of the research was to show whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme. The research objectives were:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme



- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

A deeper introduction to the research objectives, questions and hypotheses can be found in chapter 4 “Research question, aim, objectives and hypotheses”.

To gather the information required to conduct the analysis, 2,500 customers were interviewed with a questionnaire about their spending behaviour and questions were asked that enable the researcher to draw conclusions about their loyalty. On top of that internal databases within the sample company and also external databases were used to gather information. Qualitative interviews with employees of the sample company completed the raw data gathering. For three out of the four operational research hypotheses that are set up to analyse the success parameters a significance test was done. The fourth set of hypotheses was interpreted qualitatively. The research methodology is described in detail in chapter 5 “Research methodology”.

The results of this research basically confirmed that there is indeed an association between membership in a customer reward programme and the success parameters identified. This leads to the conclusion that the introduction of a customer reward programme is worthwhile for companies in this industry. An interesting finding is that customers that are in the customer reward programme showed a higher level of loyalty than non-members but also increase their share of wallet and their spending on products of the company. On top of that they showed a significantly higher profitability even if programme costs are considered. Also the transparency related to customer buying behaviour was increased for the population of programme members. All these findings suggest that a company might have a first-mover advantage by the introduction of such a programme but can also protect their business by the introduction of such a programme due to the loyalty and increased financial success with programme members. Also the opportunity to individually target customers based on their needs identified through the information that is delivered through the programme (what did they buy in the past, which crops are cultivated etc.) is a substantial competitive advantage. A description of all the results of the research can be found in chapter 6 “Results of the data analysis and

questionnaires/interviews” prior to the final chapter 7 “Conclusions, recommendations and suggestions for further research”.

The limitations of this study are treated in different chapters but are mainly described in section 5.5 “Triangulation” and in the final results chapter. These are primarily related to the confidentiality of some information that the sample company did not allow to be published. It was promised to the sample company that only non-business-critical information would be published. Even though the information is available to the researcher it is prohibited to include it in this text. The results however are based on correct data and information. Wherever information is not permitted to be included in this text it will be clearly written that this is the case.

## **2 Literature review**

As mentioned in the introduction there are different studies that cover topics related to the research described in this text. This chapter will explore the theoretical, conceptual and practical underlying issues to inform the research. Therefore the literature base is reviewed and analysed with attention to relevant publications.

The literature review is presented in four subsections that are used to derive the research question and operational hypotheses in the subsequent sections. The first section considers how marketing has developed over time and looks in particular at the specifics in the country that is analysed in this research. An understanding for the specific market situation that the sample company is facing is developed. This builds a bridge to the subsequent subsections that define the research object in more detail and clarify boundaries to other disciplines as well as the commonalities with different marketing disciplines, starting with subsection 2.1.5 “Customer relationship management in the context of reward programmes”. In section 2.2 “Emergence of reward programmes” an understanding of the importance of customer reward programmes and how they have emerged over time is developed. Section 2.3 “Research on customer reward programmes” gives insight into specific studies that are closely related to the research presented as a foundation for the final section within the literature review chapter. In this final section the literature is synthesised and research gaps are identified. All together these sections provide the basis for the next chapter on research methodology where the research questions are developed.

### **2.1 Marketing and reward programmes in Germany**

To be able to understand the potential implications and the importance of a customer reward programme in the German agribusiness industry it is essential to understand the self-image of marketing in Germany. Therefore the first section will concentrate on the history of marketing in Germany and how this self-image has developed over time until today.

The purpose of reward programmes and how they have developed in Germany compared to the American industry will be shown in the subsequent section. It is

important to understand how these programmes entered the German market and what implications there are in the agribusiness industry, as this is the industry to be analysed.

The section on strategic marketing will focus on the importance of a conscious and goal-oriented approach to marketing planning and execution. This is necessary to understand how customer reward programmes fit into the marketing concept and eventually into the marketing strategy as such. In literature it is however agreed that first of all marketing plays a decisive role with respect to the overall strategic management process of a firm and that failure in the planning and execution of marketing can prevent a company from reaching strategic targets and can even lead to an overall failure, whereas successful strategic marketing planning and execution can lead to the company outperforming the market or even assuming a leadership position (Jain 1999).

Once this is understood it will be discussed what customer behaviour looks like, especially in environments comparable to the one that the sample company of this research is facing. It is important to explain this to be able to understand what kind of customer behaviour can potentially be expected to eventually provide input for a proper design of the research questions and hypotheses. Without anticipating and going too much into detail prior to the discussion in the related section it can be said that overall satisfaction plays a key role in the creation of customer loyalty in a so-called B2B environment and that “management should pursue strategies that aim to increase attitudinal loyalty” (Rauyruen & Miller 2007).

How the sample company operates and works on the issues mentioned in the following sections will also be analysed. A conclusion regarding the maturity of their marketing positioning will be discussed.

### **2.1.1 Marketing development in Germany**

As early as the beginning of the 20<sup>th</sup> century the American consumer society embraced the term marketing and the first market research organisations, such as Consumers Research Inc., were founded (Winkelmann 2010). Driven by the

pressures of falling prices, shrinking profitability and increasing foreign competition the first stimulus for something like a marketing approach (even though with clear limitations) in Germany interestingly was seen in the agriculture industry prior to World War I, when professional trade journals asked to produce sales oriented, according to market demand (Haupt & Torp 2009). In the following decades, roughly in the 1920s and '30s, knowledge gained through experience in the area of agriculture and trade marketing determined scientific expertise in Germany (Norwich 1996). A stagnation of marketing development was experienced during the global economic crisis and World War II (Homburg & Krohmer 2006). The philosophy of marketing as a function within a company that manages the flow of goods and services to customers was called “distribution orientation with predominant functional orientation” by Meffert (1995). After World War II marketing in Germany developed into a science that mainly tried to describe the use of marketing instruments and the “exotic” discipline marketing was strengthened in the German economy in the 1950s (Winkelmann 2010). A real implementation of marketing in Germany happened with the saturation of consumption when markets moved from sellers’ to buyers’ markets and not all goods produced could be sold easily (Olbrich 2006).

Demoscopic market surveys were first established in the 1950s in Germany and thus very late in international comparison (Berghoff 2007). The following marketing developments that are relevant to this study and that happened in subsequent years, namely the introduction of reward programmes to the German economy, will be discussed in a separate section, “Customer reward programmes in the German agribusiness industry” (see section 2.2.2).

### **2.1.2 Purpose of marketing**

According to Kotler (2003) marketing is defined as:

*“the task of creating, promoting, and delivering goods and services to consumers and businesses (by) stimulating demand for a company’s products [...]. Marketing managers seek to influence the level, timing, and composition of demand to meet the organization’s objectives.”*

A marketer also needs to identify the needs of his/her customers to be able to satisfy them (Burrow 2012). This is the point where strategic marketing comes into play. As per the definition, strategic marketing is concerned with developing plans to make the best possible use of an organisation's resources and with setting up tactics to meet the objectives of a firm (Blythe et al. 2005). The creation of competitive advantage is the main goal of each marketing strategy and is achieved by creating more value to customers than other competitors (Mohr, Sengupta & Slater 2010). Kotler and Armstrong (2010) confirm this thesis and add customer satisfaction delivered by a firm or by the products of a firm to the sources of competitive advantage that eventually result in a profitable customer relationship.

Pride and Ferrel (2012) argue that competitive advantage stems from things that belong to the core competencies of a firm that it does better than others in a way that gives them an advantage compared to their competitors. This advantage is based on the strengths a company might possess by having a certain and individual set of resources in place (such as a certain reputation or brand names) that are difficult and unlikely to be copied by the competition (ibid.). To be successful a firm should therefore develop strategies that enable them to make use of the strengths it possesses and should overcome weaknesses it might have (Harrison & St. John 2010). By matching individual strengths to opportunities in the marketplace a firm is in a position to create the desired competitive advantage (Ferrell & Hartline 2011).

In the next section strategic marketing planning that deals with establishing, building, defending and maintaining competitive advantage (McDonald & Wilson 2011) will be discussed in detail.

### **2.1.3 Strategic marketing planning**

Strategic marketing planning is a function of marketing that is concerned with setting up a marketing plan that describes a sequence and a series of activities that result in the creation of marketing objectives and the formulation of plans and logical steps in order to achieve the objectives (McDonald & Wilson 2011). Prior research has shown that commercial success can be influenced by strategic marketing planning (ibid.). One of the reasons is that strategic marketing planning helps to avoid

mistakes by analysing competitors and customers properly, meaning that a suitable plan makes sure that managers ask the right questions and process analyses that make the difference between success and failure (Doyle 2008). A definition of strategic marketing planning has been established by Ranchhod (2004) as follows:

*“Strategic marketing planning involves careful analysis of an organisation’s environment, its competitors and its internal strengths in order to develop a sustainable plan of action which will develop the organisation’s competitive advantage and maximise it within given resource availability.”*

*Table 1: Effects on the efficacy of strategic marketing planning*

<b><u>Effects on the efficacy of strategic marketing planning</u></b>
<ul style="list-style-type: none"> <li>• systematic identification of emerging opportunities and threats</li> <li>• preparedness to meet change</li> <li>• specification of sustainable competitive advantage</li> <li>• improved communication among executives</li> <li>• reduction of conflicts between individuals and departments</li> <li>• involvement of all levels of management in the planning process</li> <li>• more appropriate allocation of scarce resources</li> <li>• consistency of approach across the organisation</li> <li>• a more market-focused orientation across the organisation</li> </ul>

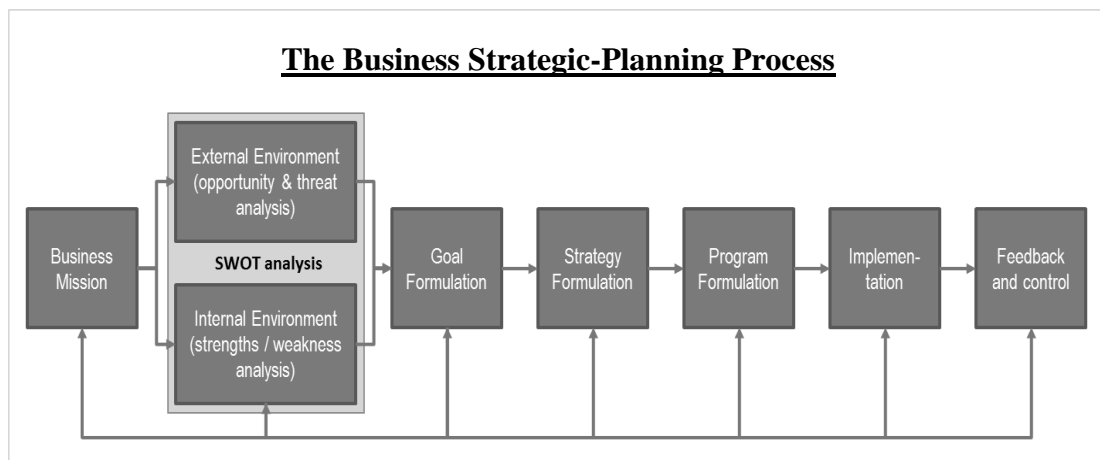
*Source: McDonald (2006)*

The identification of strategic factors that support organisational success or keep organisations from reaching their full potential should be a starting point for such an analysis (Houben, Lenie & Vanhoof 1999). These strategic factors or areas of analysis should be customer needs and wants, evaluation of competitors and their offers to the market, competitors’ strategies and communication of the factors that account for a company’s competitive advantage (Doyle 2008).

A SWOT analysis should be carried out as the basis for a strategic marketing programme that eventually flows into a strategic marketing plan (Lancaster &

Massingham 2011). The SWOT analysis is a source of strategic information that enables a firm to analyse its competitive environment in terms of internal organisational strengths and weaknesses together with external environmental opportunities and threats that eventually results in the conclusion of the strategic niche of the firm (Sahaf 2008). Sahaf (ibid.) explains that a SWOT analysis is the basis for “a firm to exploit future opportunities while avoiding threats and at the same time matching its distinctive competencies and strengths in formulating or revising its strategies”.

*Figure 1: The business strategic-planning process*



*Source: Kotler (2003)*

As shown in Figure 1, developing a SWOT analysis is one of the initial actions of a strategic business planning process. It should include an internal perspective that includes microenvironment actors (e.g. competitors, customers, distributors, suppliers) and an external perspective that covers macroeconomic forces such as economic environment, demographic developments, technological trends, political-legal changes or social-cultural history and future (Kotler 2003).

The SWOT analysis for the sample firm in terms of customer reward programmes looks as follows:



Figure 2: SWOT analysis for introduction of a customer reward programme at sample company

SWOT analysis sample company		
<div>External perspective</div> <div>Internal perspective</div>	<b>Opportunities</b> <ul style="list-style-type: none"> <li>Only a small proportion of farmers participate in reward programmes</li> <li>Competitors do not include external commercial partners and do not include integrated offers</li> <li>Creation of access to small and medium farms that cannot be reached directly by sales reps</li> <li>Willingness of competitive reward programme users to join another programme</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>Stagnation in crop protection business</li> <li>Trend to consolidation of farmers and retailers lead to shift of market equilibrium that leads to price pressures</li> <li>Competitors have first-mover advantages and have better customer knowledge than sample company</li> </ul>
	<b>Strengths</b> <ul style="list-style-type: none"> <li>One of the biggest agribusiness firms worldwide</li> <li>Young and innovative firm</li> <li>Specialisation in highly profitable agribusiness industry</li> <li>Market leader in crop protection worldwide</li> <li>Integrated solutions (crop protection / seeds business)</li> <li>Strong product portfolio</li> <li>High awareness level of customers</li> </ul>	<ul style="list-style-type: none"> <li>Due to the already innovative and high-quality products an additional customer reward programme potentially may have a positive effect on buying decisions of customers</li> <li>The traditional high influence of trading partners (that do not only sell products of the sample company) might potentially be reduced due to higher direct influence on end customers in the course of the reward programme</li> </ul>
	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>Biggest competitors have their HQ in Germany leading to market share of approx. 20% (3rd position)</li> <li>Customer reward programme introduced after competition</li> <li>Customer database used to be sourced from sales reps and no information from customer</li> <li>No direct access to smaller farmers and no knowledge</li> <li>R&amp;D leads to market success only in the long term</li> </ul>	<ul style="list-style-type: none"> <li>Long development time for new products increases the need for a short-term marketing strategy that helps to reduce market share losses</li> <li>Higher knowledge about customers of competitors though their customer reward programmes makes a different go-to markets strategy necessary. A customer reward programme at the sample company can potentially close the knowledge gap and can be used to make differentiated offers</li> </ul>

Source: according to Wendel (2012)

According to Akridge et al. (2012) a strategic marketing plan as mentioned above should be able to meet customer needs by integrating all resources and business activities. Akridge furthermore explains that this is a basis for (future) profit generation. A strategic marketing plan ideally should include the following (ibid.):

1. Conduct a SWOT analysis
2. Choose a target market
3. Choose a position
4. Develop the appropriate marketing mix
5. Evaluate and refine the marketing plan

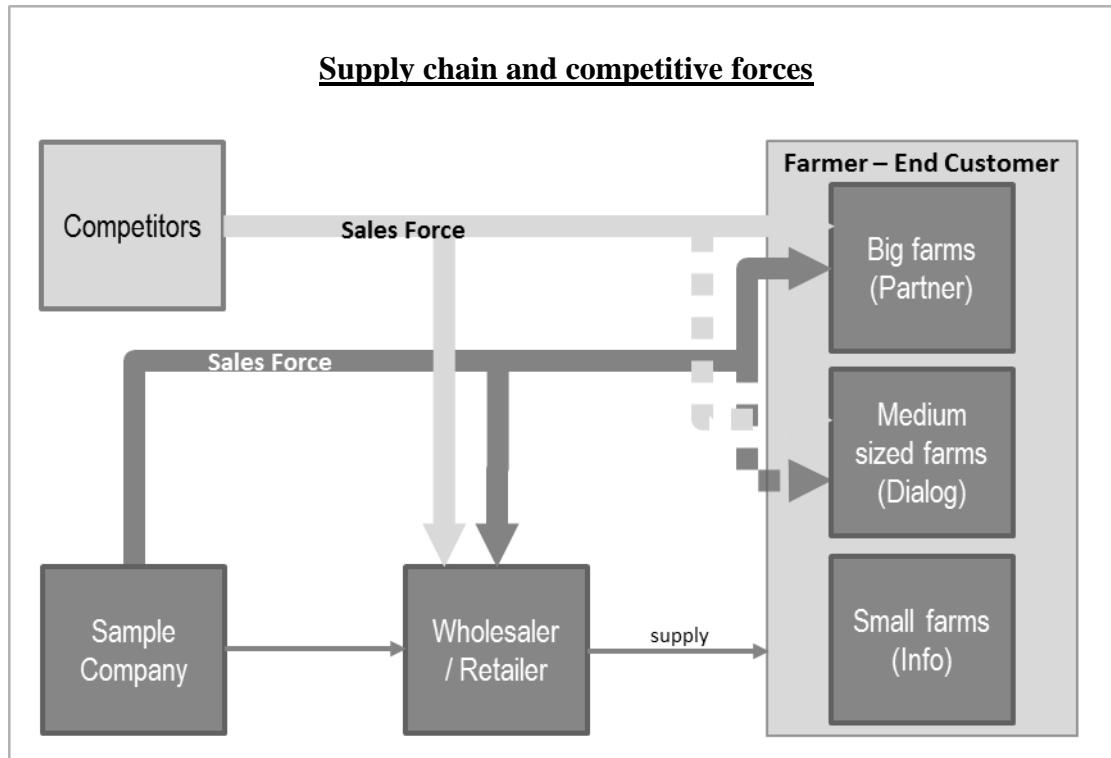
Lamb, Hair and McDaniel (2010) state that there is a set of common elements that are included in every marketing plan. These elements are the situation analysis (SWOT analysis is an example), definition of objectives, determination of a target market and making a decision regarding the appropriate marketing mix.

#### ***2.1.3.1 Definition of target markets and market segmentation***

According to Lambin, by following an undifferentiated marketing strategy that adopts a full market coverage strategy by treating the market as a whole, a company neglects the advantages of a market segmentation analysis and thus a tailored approach to each identified market segment (Lambin 2000).

Markets should therefore be segmented in a way that is useful in terms of accessibility to the market segment, differentiability (meaning the market segments should be distinguishable and respond differently to marketing mix elements) and actionable (meaning effective marketing programmes can be formulated for attracting and serving the segments) (Kotler 2003). Markets can be segmented based on various criteria (De Pelsmacker, Geuens & Van den Bergh 2007). The sample company has already established segmentation criteria according to the type of farmer, meaning crops cultivated and size of the farm. To understand the importance of proper market segmentation and the direct approach to farmers as end customers the supply chain and forces that influence these markets will be shown in Figure 3.

Figure 3: Supply chain and competitive forces



Segmentation of customers using size of customers as the segmentation criterion follows the ABC analysis approach that intends to place customers into groups according to their long-term value to the firm (Lamb et al. 2010). The rationale behind this approach in an agricultural environment is that a bigger farm has more land that can be planted and that potentially needs more seeds and crop protection products. Of course the crops that are cultivated play a decisive role. The sample company however has a strong portfolio that covers a very wide range of varieties for seeds and crop protection products. Therefore a farm with a bigger size also shows an increased potential compared to a smaller farm.

To make sure the terms used are understood correctly it needs to be mentioned that the industry analysed is the so called agribusiness. This is an industry supplying crop protection and seeds products to farmers. Whenever however the term agriculture is used it is related to the farmers, the customers of the agribusiness industry.

As shown in the Figure above there are several potential interaction points with customers. These are first of all the contacts through sales people that visit customers, especially wholesalers/retailers and big farms. Medium-sized farms are

also visited to a certain extent for direct interaction with the sample company. The sheer number of small farms however is too big to contact these farmers directly. The second means of contacting customers is through the supply chain. As seen above this applies to wholesalers and potentially big farms that are delivered directly. This in turn means that the sample company to a large extent especially for small and medium-sized farms relies on influencing wholesalers/retailers in a way that pushes their products to these customers. The company therefore needs to make sure that the right message is given through these wholesalers/retailers. This approach gives a lot of negotiating power to them. Even though there are additional means of direct interaction with these small and medium-sized farms such as mailing or advertising, they are not very focused due to the missing knowledge about these customers. The competition however has the same approach in terms of supply chain and contacting customers through a sales force.

Here it becomes obvious why a reward programme can potentially create value. Especially for small customers that cannot always be contacted directly it offers another opportunity to get in touch with them. Or as Godfrey, Seiders and Voss (2011) state, additional benefits are offered to customers by using multiple channels of communication that “enhances the overall utility of communication” and in turn customers respond with increased spending. The importance of small customers is confirmed by Sharp (2010) when he postulates that they deliver sales volume and potential for growth even though spending money on them is hard to justify due to the fact that they are so small. This topic (when is it beneficial to introduce a customer reward programme) will however be discussed in more detail in section 2.2 “Emergence of reward programmes” and the following.

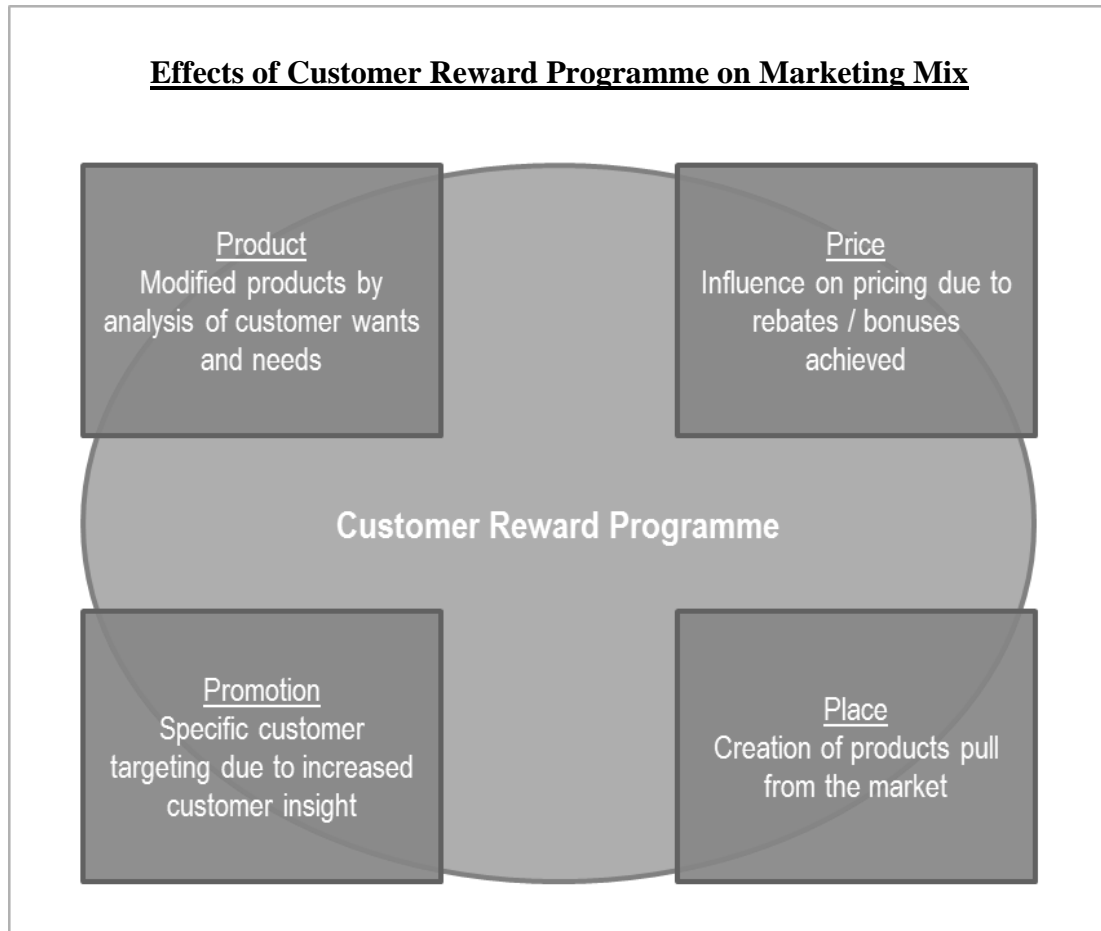
Coming back to the segmentation that has already been done by the sample company (big farms, medium-sized farms and small farms), the segmentation criteria look as follows. A Partner (big farm) possesses a farm size of on average 680 hectares. A Dialog customer (medium-sized farm) cultivates 84 hectares on average whereas an Info customer (small farm) only has a size of on average 16 hectares.

### **2.1.3.2 Marketing mix**

As introduced above the marketing mix is an outcome of the strategic marketing plan that is “realized by means of marketing instruments” (Reinecke 2008). The four elements – the so-called 4 P’s of the marketing mix (product, price, promotion, place) – have become a dominant and common theory in operational marketing management (Constantinides 2006). Researchers have linked marketing mix parameters as represented by the 4 P’s to success parameters and financial ratios such as ROI, net profit and target volume and found that metric-based information can influence shareholder value and corporate profits (Mintz & Currimp 2013). Reward programmes however interact with marketing mix elements such as price (Lewis 2004) but also as seen above directly on place as it is another channel of communication that is able to create a pull from the market. Ataman, van Heerde and Melap (2010) argue that marketing managers spend a vast amount of money every year on marketing programmes but only a few studies measure the long-term effects of these programmes over brands and categories and even if so, research in most cases concentrates on advertising and promotion rather than product or distribution.

As shown in Figure 4 below a reward programme potentially has an effect on each of the 4 P’s of the marketing mix. The question therefore is whether a reward programme actually has an effect on the success of the marketing mix of a company. Without anticipating too much to subsequent chapters where research on reward programmes will be described in more detail, it can be said that research results are diverse. Some researchers found that reward programmes are effective whereas other researchers found that such programmes do not have any positive effect (Zhang and Breugelmans 2012). Some researchers even argue that reward programmes do not deliver any competitive advantage due to the fact that all competitors use these programmes and neutralise the benefits that can potentially be created with such programmes (Dowling and Uncles 1997). All they therefore do is increase marketing costs (O’Malley 1998).

*Figure 4: Potential assumed effects of customer reward programme on marketing mix*



The marketing mix of the sample company consists of many components that are related to different areas of the 4 P's. The reward programme that has been introduced is only one brick within the entire marketing mix.

In the past two decades the 4 P's have however been challenged and extended by additional dimensions such as people, process and non-P's such as customer relationship management or knowledge management (Lee 2001, Little & Marandi 2003, Waterschoot & Van den Bulte 1992). For the research introduced it is however not decisive to explain all these dimensions in detail. It is rather important to realise that a reward programme may affect many parameters that need to be analysed to understand whether or not a programme is successful.

Considering the discussion above regarding strategic marketing planning, a company can detail on a marketing mix level how it will achieve competitive advantage (Pride & Ferrell 2013). According to Yoo, Donthu and Leep (2000) differentiation of

products from competing brands can be successfully done by creating so-called brand equity, which is a result of building strong brands. Loyal customers – defined as customers that are connected to a brand and enable the firm to charge a price premium – are the key dimension of brand equity (Aaker 1996). Brand loyalty is supposed to have a positive effect on brand equity (Lassar, Mittal & Sharma 1995). A study undertaken in a B2B setting found that customer satisfaction is positively correlated with customer loyalty (Lam et al. 2004). Among other studies this finding is supported by the research of Helgesen (2006), which also found a positive relationship between customer satisfaction and customer loyalty. Promotional activities in turn have a potential effect on customer satisfaction (Donaldson & O'Toole 2007). These findings of prior research lead to the conclusion that a customer reward programme potentially has an effect on customer loyalty. The reward programme should therefore be researched regarding this specific part of the marketing mix at the sample company. A deeper discussion regarding the effects of reward programmes and conclusions related to this research can be found in section 2.3 “Research on customer reward programmes”. Even though it was described above that reward programmes might have an effect on several areas of the marketing mix it will be described later in this text how it relates to promotion as one of the 4 P's and how promotional activities can be supported by the introduction of a reward programme.

#### **2.1.4 Customer buying behaviour in a B2B situation**

To be able to understand how buying decisions are made in the industry that is considered in this research a brief review of customer buying behaviour will be done. The customer relationship between vendors of crop protection products or seeds and farmers can be considered a B2B relationship based on the definition that there is a flow of goods or services between supplier and customer that are either used to maintain the business or that become part of another product (Morris et al. 2001). Webster and Wind have developed a broad approach that assumes the existence of a buying centre consisting of several stakeholders as described in Table 2 below, namely initiators, users, influencers, deciders, buyers and gatekeepers, who commonly make what they call an industrial buying decision (Webster and Wind 1972, Webster and Keller 2004). This group decision-making is one of the main

differences between consumer and organisational buying and the group itself is called DMU – decision-making unit (Lancaster & Reynolds 2002). Some small farmers however might still rather act as customers in a B2C relationship since potentially not all parties are involved as described in the Webster and Wind model. Hutt and Speh (2013) take a broader view than Webster and Wind and include the external perspective of a buying decision when they describe the forces that influence the buying decision of an organisation such as environmental forces, organisational forces, group forces and individual forces. For the buying behaviour of the agricultural industry both models (Webster and Wind as well as Hutt and Speh) give a very good indication of which areas to look at in identifying parameters that potentially influence a buying decision. Such parameters derived from the Hutt and Speh model might be for example weather conditions, trends in food habits or crops cultivated due to governmental promotions for energy or fuel gained from plants.

*Table 2: Stakeholders in the buying centre*

<b><u>Stakeholders in the buying centre</u></b>	
<b>Stakeholder</b>	<b>Description</b>
Initiators	Define the buying situation and start the buying process
Users	Actually use the product
Buyers	Can commit the organisation to spend money
Deciders	Have the authority to choose among potential product offerings and vendors
Influencers	Add information or constraints in the buying process
Gatekeepers	Can control the flow of information into the buying process

*Source: Webster and Keller (2004)*



In consumer marketing, which differs from industrial or B2B marketing, literature suggests a differentiation for low involvement, that is low-cost goods and services associated with routine response behaviour, where consumers spend little time on search and decision before making the purchase, and high involvement, namely infrequent or expensive products or services where consumers spend a lot of time seeking information and evaluating options (Lamb et al. 2010). In a B2B setting there are however three major organisational buying situations defined first as new task, second as modified rebuy and third as straight rebuy purchases (Lancaster & Reynolds 2002). This differentiation is suggested by research using the novelty of the buying situation having a strong effect on the complexity of the problem-solving related to a particular purchase (Webster and Keller 2004). Without going too much into detail it can be derived from literature that straight rebuy is supposed to be done routinely from a list of approved suppliers without evaluating alternatives too much, whereas in modified rebuy and even more in new-buy situations more alternatives are evaluated and deeper analysis is done (Hutt and Speh 2013). There are however findings that contradict at least to a certain extent this logic. A study found evidence of some low search efforts in new tasks and some high search in routine tasks (Anderson et al. 1984). Therefore the authors suggest also analysing the importance of the purchase, since large or critical purchases, even when routinised, may be worth the effort to scrutinise alternatives every time (ibid.). For the industry and the programme that is being researched in this text there might be implications in terms of many respects on these findings. The questions that the sample company and competitors need to ask are for example whether products are new to the customer and whether they are important.

Another study found that a buyer's preconception about trustworthiness of a supplier was able to moderate reactions on supplier price negotiation efforts and additionally it was associated with loyalty to that supplier (Schurr & Ozanne 1985). This finding however strengthens the assumption that customer loyalty is a relevant measure to increase corporate success. Additionally if a supplier is successful new-buy situations become rebuys and routine purchase behaviour in the long term for its customers (Webster and Keller 2004). Derived from this finding it can be assumed that a reward programme that potentially has a positive effect on the lifetime of a supplier–customer relationship would be successful.

Associated with the three buying situations (new task, modified rebuy and straight rebuy) there is some evidence that the concept of involvement also applies to B2B buying decisions, where a higher involvement is expected in new-buy situations and a lower one in modified and straight rebuy situations (Morris et al. 2001). The same sources and others suggest concentrating on personal contact to the buyer, informative communication and quality of the argument, and focusing on opinion leaders with high involvement or new task situations, whereas in lower involvement situations a marketer should concentrate on attention-getting, continuous promotion to retain awareness and interest as well as emphasis on sales promotions (ibid.). As a consequence this means in respect of the types of buying situations a reward programme should potentially be most useful in buyer–seller relationships that belong to the group of rebuy and modified rebuy situations to make the buyer keep buying and for new-buy situations it might help to convince the buyer to try the product.

#### **2.1.5 Customer relationship management in the context of reward programmes**

Companies that actively plan on building customer relationship development programmes are found to be more successful than companies that act unfocused in that area (Ang & Buttle 2009). Thus customer relationship management (CRM) is deemed crucial for developing customer loyalty and a basis for charging premium prices and increasing barriers to competitors (Too, Souchon & Thirkel 2001). As early as in the 1980s marketing moved from historic transactional marketing, which considered that customers need to be attracted when making a buying decision, to “relationship marketing”, whose objectives should not only be to attract customers, but to keep them and to maintain the customer to develop a long-term relationship (Harker & Egan 2006, Peck et al. 1999, Prasad & Aryasri 2008). A widely recognised work from Reichheld (1996) delivered a very strong argument for improved CRM when he found that a small increase in customer retention rates of only five per cent can produce an increase in the net present value of an average customer from 35 per cent up to 95 per cent depending on the industry. The following five reasons for increased profitability of retained customers named by

Reichheld (ibid.) make a strong case for looking at the effects that marketing vehicles have on customer retention and loyalty:

- Customer acquisition costs are high, leading to the result that customers may not become profitable if they are not retained for a longer time.
- If a customer is retained the revenues from this customer will grow.
- Due to the learning curve to the relationship the individual costs go down. Therefore the efficiency of serving this customer will be increased. Costs that are incurred with a customer are covered over several years of serving.
- Satisfied customers that are retained over several years may refer other potential customers.
- Retained customers with a long-term relationship to the company deliver a higher value. This means retained customers have a tendency to become less price sensitive and companies can charge premium prices.

The scope of customer relationship management however is to enhance the connection between customer and company by effectively managing the relations between them (Sevenich 2011). Hart et al. (1999) argue that loyalty programmes are to a large extent an intersection of CRM since they have common components, such as the use of information technology, customer knowledge or direct customer communications. Narrowly and tactically defined CRM is often seen as the implementation of a specific technological solution whereas broadly and strategically defined it is a holistic approach to managing customer relationships to create shareholder value (Payne & Frow 2005). The strategic and long-term aspect that is expressed in this definition is of particular interest for this research. An overview of attempts to define the term customer reward programme is presented in the next section.

#### **2.1.6 Definition of customer reward programmes**

According to Anders (2008) different definitions of customer reward programmes can be found, as presented in the following table.

Table 3: Definitions of customer reward programmes

<b><u>Definitions of Customer Reward Programmes</u></b>	
<b>Source</b>	<b>Definition</b>
Sharp and Sharp, 1997	Structured marketing efforts which reward, and therefore encourage, loyal behaviour
Leenheer et al., 2007	Integrated system of marketing actions, which aims to make member customers more loyal
Berry, 1995	Schemes devoted to creating pricing incentives and developing social aspects of a relationship
Shapiro and Varian, 1999	Scheme rewarding customers for repeat purchases
Youjae and Hoseong, 2003	Marketing programme designed to build customer loyalty by providing incentives to profitable customers
Palmer et al., 2000	Identifiable package of benefits offered to customers which reward repeat purchases

Source: Anders (2008)

From the definitions shown it can however be derived that there is a consensus in the research community that reward programmes aim at customer loyalty and increased or repetitive sales. The studies introduced in the following chapters will strongly support this argument.

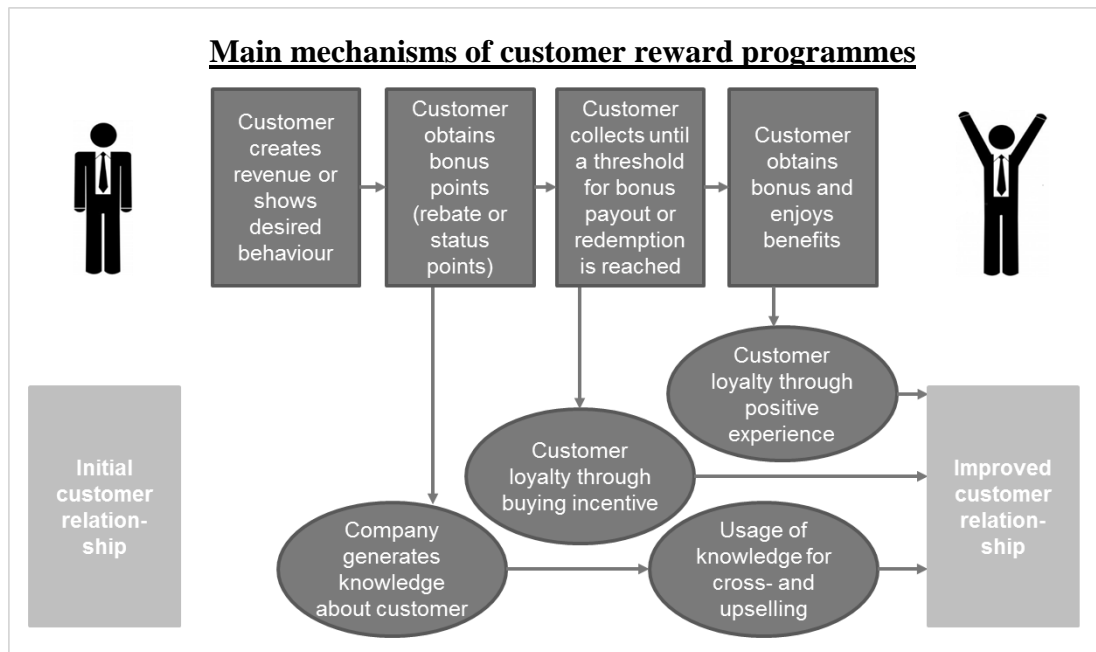
A very good definition that covers the understanding of a “true” customer reward programme for the purpose of this research is given by Liu (2007):

*“A loyalty program [or reward programme in terms of this research] is defined as a programme that allows consumers to accumulate free rewards when they make repeated purchases with a firm. Such a program rarely benefits consumers in one purchase but is intended to foster customer loyalty over time. Thus, promotions that work as “one-shot deals,” such as instant scratch cards, are not considered loyalty*

*programs here. This exclusion is appropriate because these one-time promotions do not create the same customer lock-in as true loyalty programs.”*

As mentioned above in the section on customer relationship management the long-term character of the programme as well as the long-term effects and the sustainability of the programme are decisive and make the difference regarding the success of a programme. This understanding of reward programmes is shared among many others by Feistel (2008, Lauer 2004), who states that one can speak of a bonus programme if a systematic offer is given from a firm to a customer to collect credits or bonus points for certain behavioural patterns that from a defined threshold can be exchanged into benefits or bonuses.

*Figure 5: Main mechanisms of customer reward programmes*



*Source: Lauer 2004*

Yi and Jeon (2003) have identified the following four propositions that are common to most reward or loyalty programmes and that these programmes are often based on:

1. Customers may want more involving relationships with products that they purchase.
2. A proportion of these customers show a tendency to be loyal.
3. They are a profitable group.

4. It is possible to reinforce these customers' loyalty through the loyalty programme.

These four propositions will be accepted during the course of this research. The term “reward programme” and “loyalty programme” will be used interchangeably and will be considered as one and the same for the programme analysed.

### **2.1.7 Customer reward programmes and promotion**

As described above a customer reward programme might potentially have an effect on several aspects of the marketing mix. In this section it will be discussed how reward programmes relate to promotional activities within the strategic marketing mix of a firm.

According to McCalley (1996) promotion is described as:

*“Actions directed to a single product or a group of products to create a special stimulus to buy according to the direction of the seller.”*

Or in other words promotion relates to communication and actions or means to persuade customers to buy the products of a firm (Kotler & Armstrong 2010). Taking into account these definitions it becomes evident that customer reward programmes, even though they have an effect on multiple areas of the marketing mix (as described above), clearly belong to the area of promotional activities within the strategic marketing mix. This argument is supported by O'Malley (1998), who states that the main objectives of customer reward programmes are to reward loyal customers, to generate information, to manipulate consumer behaviour and to act as a defensive measure to combat a competing scheme. Especially the manipulation of customer behaviour aspect shows a strong intersection with the description of promotion above.

Different types of promotions, namely free samples, premium or bonus offers, exchange schemes, price-off offers and payment terms offers, coupons, fairs and

exhibitions, trading stamps, scratch and win offers, sweepstakes and money-back offers, can be identified (Bootwala, Lawrence & Mali 2007; McCalley 1996).

Looking at the research that has been done it can be seen that there are many studies related to promotions, mostly however understanding promotions as a short-term price incentive, a so-called sales promotion. The findings of these studies are not clear in terms of recommendations to practitioners on how to use promotions. A study by Mela, Gupta and Lehmann (1997) for example found that such promotions increase customers' price sensitivity especially for non-loyal customers. Another study (Boulding, Lee & Staelin 1994) confirms this finding but states promotions potentially increase demand, meaning the demand curve is shifted, and that managers need to understand the long-term effects of promotions as well as to keep in mind the interdependencies with an effective use of a sales force and advertising such as long-term differentiation and shield the company from future price competition. On the other hand there are studies that support the argument that cuts in promotional spending hurt the market share of a brand (Ailawadi 2001). Interestingly the same study as mentioned above delivered some evidence that non-price promotions might not have the negative long-term effects in terms of price sensitivity of customers (Mela, Gupta & Lehmann 1997). This study in fact found that for loyal customers a non-price promotion acts like advertising and makes them even less price sensitive in the long term (*ibid.*). This finding however is a very good starting point for the analysis of reward programmes such as the one that is being researched in this study. This is especially true since it can be derived from this finding that a reward programme not directly aiming at a direct or immediate price reduction but at a bonus that a customer can choose out of a given set of reward items, such as a gardening tool, office equipment, fixtures and furnishings for an agricultural operation or something that can be used for domestic application (as offered in an agribusiness reward programme), can potentially increase customer loyalty.

Even though these findings give a good indication one needs to be aware that they are not completely adaptable to reward programmes in the narrow sense. As discussed this is especially true since these studies mainly relate to direct price reductions in the course of a sales promotion programme. The specific research

findings for reward programmes as per the definition in section 2.1.6 “Definition of customer reward programmes” will be described in the subsequent sections.

## **2.2 Emergence of reward programmes**

According to Hoffmann (2008) the history of reward programmes can be traced back to 1896, when the Sperry & Hutchison Company, USA introduced the so-called Green Stamps that customers obtained with every purchase from participating retailers that gave bonuses based on the amount of money spent by customers with these retailers. Half a century later when rebate or discount stamps entered the German consumer society in the early 1950s customers would receive stamps for every purchase that needed to be stuck into a booklet that could eventually be swapped for consumer goods at the point of sale (Lauer 2011). A frequent flyer programme established by Southwest Airlines – so-called “Sweetheart Stamps” – entered the American market as early as in the 1970s and allowed business travellers to collect benefits in order to take their partners on a free flight (O’Malley 1998). A real push for reward programmes was however experienced in the 1980s after American Airlines launched its so-called AAdvantage programme in 1981, serving as an example for almost every major airline in the US that followed with competing programmes and making many complementary industries and services such as hotels and rental car agencies (e.g. Holiday Inn and Marriott debuting Priority Club and Honored Guest, respectively, in 1983) follow suit (Wansink & Seed 2001). In 2005 more than 130 airlines had established a customer loyalty programme, resulting in a number of 163 million people that collected loyalty-based miles throughout the world (Berman 2006).

### **2.2.1 Customer reward programmes: a German perspective**

The first customer reward programme in Germany that was based on a loyalty card was established in 1959 in the retail industry when the department store chain Breuninger introduced a loyalty card for their customers (Hoffmann 2008). According to Hoffmann further programmes were introduced by retailers but only 20 years later. With the development of improved electronic data-processing equipment



an expansion and the introduction of new rebate card programmes could be seen later in the 1980s (Wittbrodt 1995).

As mentioned above following the American Airlines' example from 1981 (AAdvantage), a programme that was introduced to differentiate the company from competitors and that finally became an industry standard, many other airlines introduced frequent flyer programmes (Buhalis & Laws 2001). In the German aviation industry it took however until 1993 to come up with a comparable programme when Lufthansa introduced their "Miles & More" programme that has since successfully acquired nine million members (Feistel 2008).

It can be said that not only in the aviation industry but in general it took much longer in Germany until an increased appearance of bonus or reward programmes could be noticed (Lauer 2011). Lauer (ibid.) characterises the so-called PAYBACK programme that was introduced in March 2000 as a milestone in terms of the development of bonus programmes in Germany. This programme is a so-called multi-partner programme – a programme that is not only introduced by one company but by a group of companies, in this case from different types of retailers (food and supermarket chains, petrol stations, pharmacy chains) (Feistel 2008). A differentiation of programmes will be undertaken in section 2.3.1 "Categorisation of customer reward programmes".

The fall of the so-called "Rabattgesetz" (law governing discounts) in the year 2001 was a driver for the expansion of rebate programmes throughout the German economy (Musiol & Kühling 2009). Until then this law had generally prohibited giving discounts and additional benefits apart from a few exceptions strongly regulated by law (Zerres & Zerres 1998). Such exceptions used to be for example rebates up to a maximum of three per cent or in the course of special sales, such as summer and winter clearance sales (Vogel 2002). An analysis of bonus programmes in Germany has shown that 42 per cent of all bonus programmes were introduced after the fall of this law and another 28 per cent within one year prior to the fall of this law (Musiol & Kühling 2009).

### **2.2.2 Customer reward programmes in the German agribusiness industry**

According to Musiol and Kühling (2009) the rate of usage of reward programmes within certain industries looks as follows:

- Airline industry (without logistics): 84.2%
- Hotel and restaurant industry: 20.6%
- Petrol stations: 19.1%
- Telecommunications: 15.5%

On the list above it can be seen that reward programmes are mainly introduced and implemented in B2C relationships rather than B2B relationships. Even research that has been conducted “focuses on exploring the consequences of implementing these programs” mainly in a B2C environment (Gomez, Gutierrez Arranz & Gutierrez Cillan 2012).

Reward programmes that are set up in a B2B environment are in most cases however focused on rewards such as customer events or individually negotiated rebates based on the turnover the customer has made with the supplier in a certain year (Bender-Scheel 2010).

In the German agribusiness industry, which by definition is a B2B business, several bonus programmes from different suppliers exist. Rebates in this industry are a traditional way of rewarding customers based on the turnover with the supplier. Reward programmes as per the definition for this research (see section 2.1.6 “Definition of customer reward programmes”) are known in several supplier firms including the sample company. A study that was run by the sample company in 2011 revealed that there are mainly four programmes that customers in this industry are aware of. The results for a prompted questioning where customers were asked “[...] which reward programmes of producers of plant protection products and plant breeders do you know?” show the following results:

*Table 4: Customer awareness of reward programmes in the German agribusiness industry*

<b><u>Customer awareness of reward programmes in the German agribusiness industry</u></b>		
<b>Company Name</b>	<b>Reward Programme</b>	<b>Level of Awareness</b>
BASF	BASF Serviceland / BASF ist mehr	38%
Bayer	BayDir / Premeo	28%
Syngenta	Bonusland	28%
BayWa	BayWa Card	7%
Dow	Webmiles	3%
Pioneer	Pioneer Business Club	1%

*Source: Sample company research (2011)*

So from a competitive point of view there are three programmes that need to be considered – the programmes from BASF, Bayer and Syngenta.

The BASF programme “BASF ist mehr” is the oldest one out of these three. It entered the market in 2005 and it offers its members rewards mainly in the area of home and gardening equipment, agricultural use and recreation.

The Bayer programme was introduced in 2008 and also offers different kinds of rewards to customers. Bonusland, the programme that was introduced in 2011 as the last one out of these three, is the reward programme from Syngenta.

All three programmes use the same basic method. All of them have labels stuck on their products that equal a certain number of bonus points. These points can be entered into a web portal that the farmer needs to be registered on first. These labels can also be submitted by post.

As a result of their research Dowling and Uncles (1997) name three decisive reasons or situations when the introduction of a customer reward programme might be useful to the firm:

- A customer reward programme directly enhances the product/service value proposition and creates a pull effect from the market
- A customer reward programme expands the availability of a product/service
- A customer reward programme neutralises a competitor's programme

As described above the competitors of the sample company introduced their programmes much earlier. Therefore the programme of the sample company definitely addresses the target mentioned in bullet three. Apart from that it is also an attempt to address the targets mentioned in bullets one and two.

## **2.3 Research on customer reward programmes**

In the following sections results of the research on customer reward programmes will be discussed. This is important to understand the findings and subsequently the implications they have on the research field presented in this text.

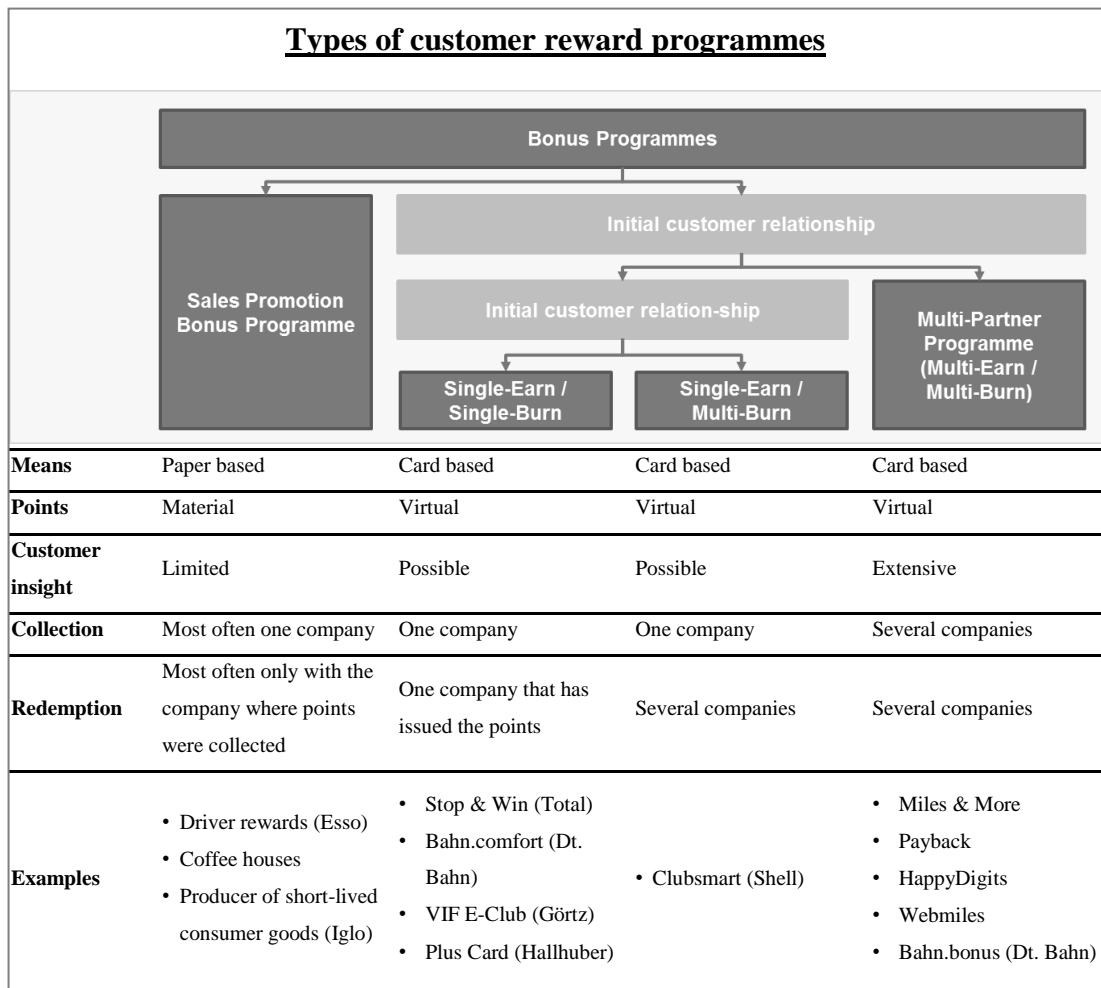
In business practice the main reason for developing a customer reward scheme is competitive considerations (Dowling & Uncles 1997). Such reward programmes are intended to increase customer loyalty and customer relationship with the firm (Bolton, Lemon & Verhoef 2004). This is of particular interest to companies since research has found that acquiring a new customer is up to four to five times more

expensive than maintaining an established customer relationship (Dorner 1999, Lübke & Petersen 1996, Too, Souchon & Thirkel 2001).

### 2.3.1 Categorisation of customer reward programmes

Customer reward programmes can be categorised according to their set-up and content. To understand the differences between the certain types of programmes and to be able to define the research area in more detail the potential types of programmes are shown in Figure 6.

Figure 6: Potential types of customer reward programmes and details



Source: according to Feistel 2008

Sales promotion can be defined as an “action oriented marketing event whose purpose is to have direct impact on the behaviour of the firm’s customers” (Weitz & Wensley 2005). The effects of classical short-term sales promotions such as increase

in price sensitivity (Chandon, Wansink & Laurent 2000) have already been described in detail in section 2.1.7 “Customer reward programmes and promotion” and do not need to be discussed here again. In single partner programmes bonus points or credits are only issued by one company whereas in single-burn programmes rewards can only be redeemed with the issuer of the points (Feistel 2008). In multi-burn programmes the difference is that rewards can be redeemed at different companies (ibid.). The reward programme that serves as the research object at the moment is set up as a single-earn/multi-burn programme. This might be subject to future change though, having it transformed into a multi-partner programme (multi-earn/multi-burn). The reason is that a multi-partner programme not only delivers significant advantages on an operational scale and offers a wider range of benefits to members but it can also be leveraged for cross-selling to customer bases that belong to other partners (Zaman et al. 2010).

### **2.3.2 Research rationale**

In 2003 an important study concluded that even though the size of the reward programme market has become huge there is little empirical research on whether reward programmes are indeed perceived as valuable to their members and to what extent they actually contribute in terms of building brand loyalty (Yi and Jeon 2003). The same study reveals that there is also little research on the variables that influence the relationship between loyalty programmes and customer loyalty (ibid.).

Leenheer et al. (2003) in research conducted in the Dutch supermarket industry show that customer loyalty programmes in general have a positive influence on share of wallet. The study also reveals that three out of seven programmes are not effective in terms of profitability and that four programmes give more rewards away than they earn back in revenue. Derived from these findings it is proposed to invest rewarding money predominantly in delayed rewards, such as a saving feature. The main limitation of this study is that it only measures monetary parameters of the programmes. As in Leenheer’s approach other studies are also concerned about single parameters only, mainly related to additional sales but not related to a positive change in customer behaviour or customer relationship (Glusac 2005).

As a basis for the analysis of customer reward programmes, studies revealed that there is indeed a positive relationship between customer satisfaction and customer loyalty that eventually has a positive effect on customer profitability on the individual customer level (Helgesen 2006). The discussions regarding these relationships are however ambiguous in that some studies do not find a positive relationship between customer loyalty and customer profitability (Söderlund and Vilgon 1995). Sharp (2010) argues that loyalty programmes only attract existing buyers of a brand that take the rewards as they buy the products anyway and that such programmes therefore do not have a positive effect on customer loyalty. Another study found that basic assumptions for long-life customers that are commonly used in business practice, such as that long-life customers spend more, are lower-cost customers to serve and have lower price sensitivity, cannot be taken for granted (Reinartz & Kumar 2000). The authors in fact argue that managing customers for loyalty is not equally the same as managing customers for profits and therefore both should be managed at the same time to strengthen the link between them (Reinartz & Kumar 2002). Nonetheless another study found that members of loyalty programmes are in general less sensitive in terms of judgment of the overall quality delivered by a company and are less price sensitive compared to price advantages competitors may have (Bolton et al. 2000). For the research that is described in this text this is considered a component of customer loyalty.

Dowling and Uncles (1997) argue that customer loyalty programmes in the majority of cases will cost money to provide more benefits to customers and therefore suggest “that customer loyalty programs which (i) directly enhance the product/service value proposition, or (ii) broaden the availability of the product/service, or (iii) neutralize a competitor’s program, may be worthwhile”. A study by Liu (2007) even found contradicting results compared to the aims of many customer reward programmes. It found that even though most of them are designed to attract heavy buyers it actually had the biggest effect on light and moderate buyers, whereas heavy buyers only earned the benefits but did not increase their spending limits and loyalty over time.

By distinguishing customers according to their spending behaviour, Kumar (2008) proposes to not just develop a customer reward programme as such, but to segment customers according to loyalty and profitability since many customers are not

profitable to the firm at all. Subsequently a loyalty programme should be developed that aims at maximising profitability by asking questions such as:

1. Who should be rewarded?
2. What type of reward should be given?
3. How much should the reward be worth?

This approach is concerned about behavioural and attitudinal changes that can be achieved by rewarding customers depending on their level of profitability (Kumar 2008).

The issue of customer lifetime value (the value of a customer relationship during the existence of this relationship) is touched upon by the concept of customer equity that is also mainly concerned about customer profitability (Blattberg & Deighton 1996). Focused on that particular financial parameter it ignores the existence of the value created by customer advocacy. Such value may stem from attraction of new customers that are acquired through the existing customer relationship (Ambler & Roberts 2005; Haenlein, Kaplan & Schoder 2006). Indirect benefits from customer advocacy that deliver additional value to the firm that go beyond the customer equity concept was proved by Ryals (2008). Thus for the research proposed it will be assumed that the advocacy ladder as described by McDonald and Christopher (2003) is a valid concept including six rungs: suspect, prospect, customer, client, supporter and advocate.

Many researchers also argue that the value of customer reward programmes does not only stem from increased financial measures or improved customer relationship. They argue that the greatest benefit of such programmes is the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006). This is confirmed by Sharp (2010) when he states that such programmes are a means to “build a database of customers, create a new channel to talk to customers and to monitor buying”. Bailey et al. (2009) in a study at different UK-based companies strengthen the importance of customer insight when they suggest that rather than just segmenting customers by fixed criteria a firm should develop propensity models which when clustered can determine the



most likely customers for buying specific products. An approach that combines the principles of customer relationship management and knowledge management, so-called customer knowledge management, is considered a powerful tool that contributes to success for both customers and companies serving them (Gibbert et al. 2002). Gebert et al. (2003) introduce a model for customer knowledge management that captures information throughout all customer processes for, from and about customers, such as sales, services and marketing, and confirm the importance of the integration of this information into CRM. Customer knowledge that stems from customer information, meaning customer information is transformed into knowledge during a process of strategic analysis, enables a firm to develop customer-specific strategies (Campbell 2003). Gaining customer knowledge can potentially provide a significant competitive advantage to companies (Gibbert et al. 2002). Humby et al. (2003) in a study made at the British super market chain Tesco confirm that through the reward programme (Clubcard) the firm was able to make use of the data gained and was able to react immediately on the information gathered. For the research described an assumption based on these findings in literature is made that customer information gained through a customer reward programme would be beneficial to a company. Other than that there are parameters that can potentially be used to measure the success of a reward programme, such as a customer's likelihood to shop in a certain store, use a particular brand, duration of membership in a reward programme, market share, sales volume and as discussed above profitability (Berman 2006). Some of these parameters are relevant for the research that is being discussed.

## **2.4 Summary and gaps identified**

Research question:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

Aim of the research

- whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme.

The research objectives:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme
- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

As described in the sections above marketing and subsequently customer reward programmes developed much later in Germany than in the US. It was described that a strategic marketing approach is suggested to develop competitive advantage making best use of a company's resources. The traditional way of communicating with customers - this is exploiting the benefits of a sales force - is common in the agribusiness industry. Since this approach needs extensive human resources and is only possible to be applied to the most promising potential or actual customers – mainly big farms and retailers – the entire industry is searching extensively for means to get in touch more efficiently with a broader audience, most preferably with all potential and actual customers. As a solution to solve this problem customer reward programmes as already used extensively in other industries were identified. It was described that by using the correct marketing mix, brand loyalty that eventually has an effect on brand equity can be increased. Buyer behaviour in B2B relationships was analysed with the conclusion that customer reward programmes can have a positive effect on different types of buying situations. The case for strong customer relationship management was made and it was shown how customer reward programmes are embedded into the four P's of the marketing mix, especially in the area of promotion. Here the case was made that most studies in this area mainly relate to direct price reductions and research is mainly concerned about market share and effects of certain types of customers, namely non-loyal customers. Here the effects of customer reward programmes as a promotional tool out of the marketing

mix exploring how customer reward programmes function as a long-term marketing tool rather than short-term or immediate price reductions can be researched.

The development of customer reward programmes in Germany in general and in the agribusiness industry in particular was explored. Prior research on customer reward programmes as described above especially regarding the effectiveness of such programmes revealed that findings of multiple studies vary greatly and are sometimes even contradictory. These inconsistent findings are a strong argument to look deeper into the issue and provide further samples to stabilise the picture.

The studies described above were mainly conducted in the retail industry. There is no evidence in the literature that any study has ever analysed reward programmes in the German agribusiness industry. This clearly identifies a knowledge gap. The fact that in industries already analysed by researchers mainly end customers rather than distributors or other intermediaries are targeted supports the assumption that comparable results should be obtained in the agribusiness industry where customers are targeted directly by marketers and sales people. A difference is however that there is a B2B relationship in the proposed research instead of a B2C relationship to customers in prior research. This also gives a good indication that a further knowledge gap is identified. Therefore the research does not only explore the effects of a customer reward programme in this specific industry but also in a broader sense and the results might be applicable to other B2B relationships in other industries.

The research described will address these gaps by analysing the effectiveness of a research programme in the agribusiness industry. It also helps to give more evidence related to the contradictory findings of prior research. How this is done and the means to achieve this will be described in the following sections.

### **3 Synthesis of the literature**

In this chapter the literature review above is summarised in a way that allows the reviewed literature to be connected to the research questions, aim, objectives and hypotheses in the next chapter by developing a basic theory for the research presented in this text. To do so the literature presented in the sections above will be synthesised and relevant relationships with respect to customer reward programmes will be determined. From the literature review it was seen that competitive advantage is one of the main drivers of every marketing strategy (Mohr, Sengupta & Slater 2010). Therefore the first section of this chapter will look at this relationship as a starting point. Out of this the single parameters relevant for this research that have an effect on customer reward programmes will be derived.

#### **3.1 Customer reward programmes and competitive advantage**

As mentioned in the literature review, strategic marketing plays a key role in developing competitive advantage and the creation of competitive advantage can be considered the main goal of each marketing strategy (Mohr, Sengupta & Slater 2010). Or as Jain (1999) puts it, marketing plays a decisive role with respect to the overall strategic management process of a firm and failure in the planning and execution of marketing can prevent a company from reaching strategic targets and can even lead to an overall failure, whereas successful strategic marketing planning and execution can lead to the company outperforming the market or even assuming a leadership position. Blythe et al. (2005) explain the importance of making the best possible use of an organisation's resources to meet these objectives. Peteraf (1993) has developed an interesting model defining resources that are able to create a competitive advantage, such as the ability to better satisfy customer needs, limits to competition or imperfect mobility. Reward programmes however are intended to increase customer loyalty and customer relationships with the firm (Bolton, Lemon & Verhoef 2004). Another finding from various researchers is that acquiring a new customer is up to four to five times more expensive than maintaining an established customer relationship (Dorner 1999, Lübke & Petersen 1996, Too, Souchon & Thirkel 2001). Therefore it can be sensibly derived that a customer reward programme potentially creates imperfect mobility, limits competition and satisfies

customer needs. Linking these findings together it can be argued **there is a relationship between membership in a customer reward programme and competitive advantage**, where the latter is supposed to be the main goal of marketing as elaborated above. If this statement is true it also means that everything that makes a customer reward programme successful implicitly has an impact on competitive advantage as a desired outcome of each activity. The parameters discussed in the literature review that potentially have an impact on the success of customer reward programmes will be discussed in the following.

According to Rauyruen & Miller (2007) it can be argued that overall satisfaction plays a key role in the creation of customer loyalty in a so-called B2B environment and furthermore that “management should pursue strategies that aim to increase attitudinal loyalty”.

Based on the statements of Yoo, Donthu and Leep (2000), differentiation of products from competing brands can be successfully ensured by creating so-called brand equity, which is a result of building strong brands. Loyal customers – defined as customers that are connected to a brand and enable the firm to charge a price premium – are the key dimension of brand equity (Aaker 1996). Brand loyalty is supposed to have a positive effect on brand equity (Lassar, Mittal & Sharma 1995). A study undertaken in a B2B setting found that customer satisfaction is positively correlated with customer loyalty (Lam et al. 2004). This finding is supported among other studies by the research of Helgesen (2006), which also found a positive relationship between customer satisfaction and customer loyalty. Promotional activities in turn have a potential effect on customer satisfaction (Donaldson & O'Toole 2007). These findings of prior research lead to the conclusion that a customer reward programme potentially has an effect on customer loyalty.

### **3.2 Customer reward programmes and customer loyalty**

Another study found that a buyer's preconception about trustworthiness of a supplier was able to moderate reactions on supplier price negotiation efforts and was additionally associated with loyalty to that supplier (Schurr & Ozanne 1985).

Companies that actively plan on building customer relationship development programmes are found to be more successful than companies that act unfocused in that area (Ang & Buttle 2009). Thus customer relationship management (CRM) is deemed crucial for developing customer loyalty and a basis for charging premium prices and increasing barriers to competitors (Too, Souchon & Thirkel 2001).

The scope of customer relationship management, however, is to enhance the connection between customer and company by effectively managing the relations between them (Sevenich 2011). Hart et al. (1999) argue that loyalty programmes are to a large extent an intersection of CRM since they have common components, such as the use of information technology, customer knowledge or direct customer communications. Narrowly and tactically defined CRM is often seen as the implementation of a specific technological solution whereas broadly and strategically defined it is a holistic approach to managing customer relationships to create shareholder value (Payne & Frow 2005).

Of the four propositions identified by Yi and Jeon (2003) that are common to most reward or loyalty programmes, two of them, namely “A proportion of these customers show a tendency to be loyal” and “It is possible to reinforce these customers’ loyalty through the loyalty program” are most relevant to this research. Therefore the assumption made for the research presented in this text is that **there is a relationship between membership in a customer reward programme and loyalty.**

### **3.3 Customer reward programmes and financial parameters**

When Reichheld (1996) analysed the effects of retained customers he found five reasons for increased profitability that are potentially interesting for the introduction of a customer reward programme:

- Customer acquisition costs are high, leading to the result that customers may not become profitable if they are not retained for a longer time.
- If a customer is retained the revenues from this customer will grow.

- Due to the learning curve to the relationship the individual costs go down. Therefore the efficiency of serving this customer will be increased. Costs that are incurred with a customer are covered over several years of serving.
- Satisfied customers that are retained over several years may refer other potential customers.
- The value that a long-term relationship has to a customer to retained customers. This means retained customers have a tendency to become less price sensitive and companies can charge premium prices.

Leenheer et al. (2003) in research conducted in the Dutch supermarket industry shows that customer loyalty programmes in general have a positive influence on share of wallet. The study also revealed that three out of seven programmes are not effective in terms of profitability and that four programmes give more rewards away than they earn back in revenue.

The four elements – so-called 4 P's of the marketing mix (product, price, promotion, place) – have become a dominant and common theory in operational marketing management (Constantinides 2006). Researchers have linked marketing mix parameters as represented by the 4 P's to success parameters and financial ratios such as ROI, net profit or target volume and found that metric-based information can influence shareholder value and corporate profits (Mintz & Currimp 2013). Reward programmes however interact with these marketing mix elements such as price (Lewis 2004). Therefore it can be assumed that reward programmes have an effect on financial measures.

The issue of customer lifetime value (the value of a customer relationship during the existence of this relationship) is touched upon by the concept of customer equity that is also mainly concerned about customer profitability (Blattberg & Deighton 1996). Focused on that particular financial parameter it ignores the existence of the value created by customer advocacy. Such value may stem from the attraction of new customers that are acquired through the existing customer relationship (Ambler & Roberts 2005; Haenlein, Kaplan & Schoder 2006). The concept of customer lifetime value can be linked to customer reward programmes as it is assumed that such programmes have an effect on customer loyalty (see above) and consequently on

customer equity. According to the statement made by Blattberg and Deighton (1996) that customer equity is concerned about customer profitability in turn this means that customer reward programmes might have an impact on customer profitability.

Kotler and Armstrong (2010) also make a strong case for the connection of customer reward programmes and financial parameters when they add customer satisfaction delivered by a firm to the sources of competitive advantage that eventually result in a profitable customer relationship. This assumption is supported by prior research results from Donaldson & O'Toole (2007) when they found that promotional activities might have a potential effect on customer satisfaction. From this it can be concluded that a customer reward programme also has an effect on customer loyalty and in connection with the statements made in this paragraph potentially on financial parameters.

That customers in a customer reward programme are a profitable group is one of the four propositions identified by Yi and Jeon (2003) that are common to most customer reward or loyalty programmes. There are studies supporting this statement as they revealed that there is indeed a positive relationship between customer satisfaction and customer loyalty that eventually has a positive effect on customer profitability on an individual customer level (Helgesen 2006). The discussions regarding these relationships are however ambiguous in that some studies did not find a positive relationship between customer loyalty and customer profitability (Söderlund and Vilgon 1995).

By distinguishing customers according to their spending behaviour, Kumar (2008) proposes to not just develop a customer reward programme as such, but to segment customers according to loyalty and profitability since many customers are not profitable to the firm at all. Subsequently a loyalty programme should be developed that aims at maximising profitability by asking questions such as:

1. Who should be rewarded?
2. What type of reward should be given?
3. How much should the reward be worth?



This approach is concerned with behavioural and attitudinal changes that can be achieved by rewarding customers depending on their level of profitability (Kumar 2008).

Berman (2006) suggests parameters that can potentially be used to measure the success of a reward programme, such as a customer's likelihood to shop in a certain store, use a particular brand, duration of membership in a reward programme, market share, sales volume and most relevant to this part of the literature synthesis, profitability.

Since many sources are concerned with the effects of customer reward programmes and financial parameters, most likely revenues and profitability confirming the connection, it is assumed that **there is a relationship between membership in a customer reward programme and financial parameters.**

### **3.4 Customer reward programmes and customer insight**

As discussed in the literature review above there are means of direct interaction with small and medium-sized farms or customers such as mailing or advertising where they cannot be approached directly by using sales force staff. These means of interaction are however not very focused and efficient where knowledge about customers is missing.

Therefore many researchers argue that the value of customer reward programmes not only stems from increased financial measures or improved customer relationships. They argue that the greatest benefit of such programmes is the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006).

The importance of this statement is underlined by many authors when they extended the traditional 4 P's of marketing and challenged them by extending this model with additional dimensions such as people, process and non-P's such as customer relationship management or knowledge management (Lee 2001, Little & Marandi 2003, Waterschoot & Van den Bulte 1992). For the research introduced in this text

especially knowledge management has been identified as one of the important dimensions.

Hart et al. (1999) argue that loyalty programmes are to a large extent an intersection of CRM since they have common components, such as the use of information technology, customer knowledge or direct customer communications.

Bailey et al. (2009) in a study at different UK-based companies strengthen the importance of customer insight when they suggest that rather than just segmenting customers by fixed criteria a firm should develop propensity models which when clustered can determine the most likely customers for buying specific products. An approach that combines the principles of customer relationship management and knowledge management, so-called customer knowledge management, is considered a powerful tool that contributes to success for both customers and companies serving them (Gibbert et al. 2002). Gebert et al. (2003) introduce a model for customer knowledge management that captures information throughout all customer processes for, from and about customers, such as sales, services and marketing, and confirm the importance of the integration of this information into CRM. Customer knowledge that stems from customer information, meaning customer information is transformed into knowledge during a process of strategic analysis, enables a firm to develop customer-specific strategies (Campbell 2003). Gaining customer knowledge can potentially provide a significant competitive advantage to companies (Gibbert et al. 2002).

The findings from the literature review therefore suggest that **there is a relationship between membership in a customer reward programme and customer insight.**

### 3.5 Summary

Research question:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

## Aim of the research

- whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme.

## The research objectives:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme
- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

In the literature synthesis above it was shown how relationships between particular parameters and membership in a customer reward programme were derived from the literature analysed. These relationships and the related parameters can be summarized in a research question as shown in the next chapter.

The research objectives as defined in the next chapter as well are related to these success parameters. The second research objective is concerned with customer behaviour and customer perception in relation to the customer reward scheme. The relevance of his research objective was confirmed by many authors in the literature review when they claimed that the greatest benefit of a customer reward programme is the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006). Based on this the second research objective was set up to analyse behaviour or perception changes in relation to the scheme. The third research objective is related to the knowledge created through a customer reward programme. The relevance of this objective was confirmed by many authors when they argue that loyalty programmes are to a large extent an intersection of CRM since they have common components, such as the use of information technology, customer knowledge or direct customer communications (Hart et al. 1999) or furthermore gaining customer knowledge can potentially provide a significant competitive advantage to companies (Gibbert et al.

2002). Here the focus was on the amount of information gained through the programme.

In summary the following relationships relevant for customer reward programmes were described implicitly in the literature review and identified / justified in the literature synthesis:

- customer reward programme and competitive advantage (as a general relationship based on the single success parameters)
- customer reward programme and loyalty
- customer reward programme and revenue
- customer reward programme and profitability
- customer reward programme and customer insight

## **4 Research question, aim, objectives and hypotheses**

After the introduction to the literature in prior chapters and the deduction of relevant relationships for this research the research question, aim and objectives as well as the research hypotheses will be established. The chapter is organized hierarchically starting with the explanation of the research question. The research hypotheses are justified in detail at the end of this chapter.

According to Drucker (1999) the purpose of a firm does not lie inside of the firm itself but there must be a greater purpose that lies in the society. Drucker furthermore argues that a firm can only make this social contribution if it is highly profitable. From his perspective a firm only has two basic functions that produce results: marketing and innovation. “All the rest are costs” (ibid.).

As described above customer satisfaction delivered by a firm or by the products of a firm are a source of competitive advantage that eventually result in a profitable customer relationship (Kotler and Armstrong 2010). The creation of such competitive advantage is the main goal of each marketing strategy and is achieved by creating more value to customers than other competitors (Mohr, Sengupta & Slater 2010).

In the section on definitions of customer reward programmes it was derived that there is a consensus in the research community that reward programmes aim at customer loyalty and increased or repetitive sales. As seen above these are however means of competitive advantage and thus a customer reward programme can be derived to have an effect on competitive advantage.

A gap in literature was identified in the agribusiness industry. Here it was noticed that there is no evidence that customer reward programmes in this industry especially in Germany have ever been analysed. Based on the work of authors summarised in the literature synthesis, such as Peteraf (1993), who developed a model defining resources that are able to create a competitive advantage (such as the ability to better satisfy customer needs, limits to competition or imperfect mobility) and based on the fact that reward programmes intend to increase customer loyalty and customer

relationships with the firm (and therefore should have an effect on these resources) (Bolton, Lemon & Verhoef 2004) it makes sense to ask the research question:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

Based on the literature analysed and the gaps identified the aim of the research was to show whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme. The research aim and objectives were supported by prior research findings as shown above. The research objectives were:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme
- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

The research objectives are justified by particular sources mentioned in the literature review. The first objective for example is justified by the parameters to be used to measure the success of a reward programme suggested by Berman (2006). The second objective is derived from e.g. one of the four propositions identified by Yi and Jeon (2003) that “A proportion of customers show a tendency to be loyal”. The third objective is derived from e.g. Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006, who argue that the greatest benefit of customer reward programmes is the insight a firm obtains into customer buying behaviour and customer information.

In order to achieve the aim, the individual objectives needed to be achieved.

The literature analysed suggest that a buyer’s preconception about trustworthiness of a supplier is able to moderate reactions on supplier price negotiation efforts and additionally is associated with loyalty to that supplier (Schurr & Ozanne 1985). As discussed above this finding strengthens the assumption that customer loyalty is a

relevant measure to increase corporate success and therefore relevant to customer reward programmes.

Reichheld (1996) identified five reasons for increased profitability as a result of increased retention rates. The issue of customer lifetime value is touched upon by the concept of customer equity (Blattberg & Deighton 1996). Researchers have linked marketing mix parameters as represented by the 4 P's to success parameters and financial ratios such as ROI, net profit or target volume and found that metric-based information can influence shareholder value and corporate profits (Mintz & Currimp 2013). These findings in the analysed literature indicate that financial parameters are worth analysing to judge the success of a customer reward programme.

As a third relevant success parameter, customer insight based on the reasoning by many researchers that the greatest benefit of such programmes is the insight a firm obtains into customer buying behaviour and customer information was identified (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006).

The research hypothesis was therefore set as follows.

H<sub>1</sub>: There is a relationship between membership in a customer reward programme and increased customer loyalty, financial parameters and better insight to the customer.

The operational hypotheses derived from literature analysis all have in common that they were suggested by prior research to be desired effects that eventually have a positive effect either on brand equity or on the success of strategic marketing planning and therefore on the competitiveness of a firm. Operational hypotheses are as follows:

H<sub>1</sub>: There is an increase in customer loyalty as a result of participation in a customer reward programme

This hypothesis was derived from the finding that promotional activities potentially have an effect on customer satisfaction (Donaldson & O'Toole 2007) and that the findings of various prior research support the conclusion.

H<sub>1</sub>: There is an increase in revenue as a result of customers participation in a customer reward programme compared to the status quo without a reward programme

This hypothesis was particularly derived from the finding of Reichheld (1996) that a retained customer potentially shows increased revenues and has a tendency to become less price sensitive, allowing companies to charge premium prices.

H<sub>1</sub>: There is an increase in profit contribution as a result of participation in a customer reward programme

This hypothesis was derived from the finding that customer satisfaction delivered by a firm or its products results in a profitable customer relationship (Kotler and Armstrong 2010). This is confirmed by Reichheld (1996), who states that a customer needs to be retained a certain period of time to become profitable. Also the contradictory findings of Leenheer et al. (2003), Helgesen (2006) or Söderlund and Vilgon (1995) made a strong case for analysing this parameter. As one of the four propositions of Yi and Jeon (2003), that customers in a customer reward programme are a profitable group, and considering the contradictory findings on this parameter in prior research, this measure should be challenged.

H<sub>1</sub>: There is an increase in insight into customer buying behaviour and customer information as a result of the introduction of a customer reward programme

Analysing this parameter is supported by many researchers who argue that the value of customer reward programmes does not only stem from increased financial measures or improved customer relationship but also – and for some of them this is even the greatest benefit – from the insight a firm obtains into customer buying



behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006).

In order to test the research hypotheses, four operational hypotheses were devised. The null hypotheses were tested first and, based on this, the alternative hypotheses were rejected or accepted.

Research hypotheses:

H<sub>0</sub>: There is no relationship between membership in a customer reward programme and increased customer loyalty, financial parameters and better insight to the customer.

H<sub>1</sub>: There is a relationship between membership in a customer reward programme and increased customer loyalty, financial parameters and better insight to the customer.

Operational research hypotheses:

H<sub>0</sub>: There is no increase in customer loyalty as a result of participation in a customer reward programme

H<sub>1</sub>: There is an increase in customer loyalty as a result of participation in a customer reward programme

H<sub>0</sub>: There is no increase in revenue as a result of customers participation in a customer reward programme compared to the status quo without a reward programme

H<sub>1</sub>: There is an increase in revenue as a result of customers participation in a customer reward programme compared to the status quo without a reward programme

H<sub>0</sub>: There is no increase in profit contribution as a result of participation in a customer reward programme

H<sub>1</sub>: There is an increase in profit contribution as a result of participation in a customer reward programme

H<sub>0</sub>: There is no increase in insight into customer buying behaviour and customer information as a result of the introduction of a customer reward programme

H<sub>1</sub>: There is an increase in insight into customer buying behaviour and customer information as a result of the introduction of a customer reward programme

In this section it was discussed that prior research in the area of customer reward programmes as cited in prior chapters and as summarised in this section justify the hypotheses made above. In the next sections the structure of the research and the basis including research paradigm, theoretical framework, research methodology, sample design and details of the data collection process as well as premises such as research ethics and significance will be discussed.

## 5 Research methodology

In the previous chapters prior research relevant to this analysis was explained and the literature base as a foundation to this research was described. Based on prior research and literature the research question, aim and objectives were derived. The research methodology that builds on these prior chapters will be explained in this chapter.

As described above the research was based on hypotheses testing and qualitative testing. To make a decision regarding the best way of carrying out the research and how to measure the parameters derived from the literature and stated in the research question as well as the research and operational hypotheses, prior research studies needed to be analysed. This analysis and the outcome of the reading will be described in section 5.2 “Research methodology derived from literature”. Prior to this the research paradigm and the theoretical framework for the research will be discussed.

The sample type and size as well as the details of the data collection process will also be justified by reviewing prior research and an analysis what works best in the case of the research described in this text will be given.

Since the operational hypotheses need to be tested to eventually draw a conclusion on the research question these operational hypotheses are addressed in the research methodology section. The approach to testing the operational hypotheses will be described in more detail in subsequent sections of the research methodology chapter.

For the first operational hypothesis a so-called net promoter score that is measured using a Likert scale was used for drawing a conclusion on  $H_0$  and  $H_1$ . The net promoter score is intended to give an indication on whether or not customers are loyal to the company. A comparison between participants of the programme and non-participating customers delivers a conclusion to this hypothesis.

Related to the second operational hypothesis it must be recognized that as stated in the literature review above, research widely accepts increased revenue as a success measure for a customer reward programme (Leenheer et al. 2003; Reichheld 1996).

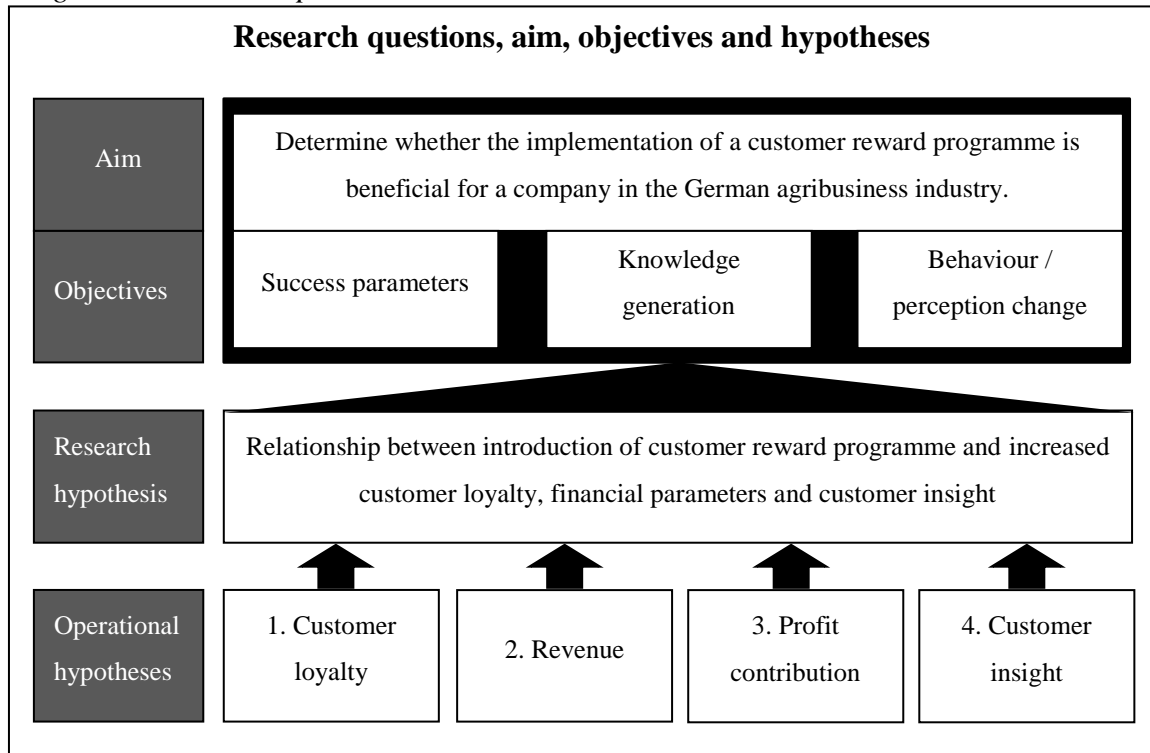
In section 5.3 “Sampling, Instrument design and testing” the appropriateness of a year-on-year comparison of this measure for customers participating in a reward programme will be justified. It will be tested if there is a significant change prior to and after joining the programme for this parameter.

The third operational hypothesis was based on the assumption that customer lifetime value is increased through a customer reward programme an analysis for participating customers vs. non-participating customers was undertaken. Since profit contribution can however be greatly influenced by many other conditions such as weather or changes in the entire market a year-on-year analysis alone (development prior to and after joining the programme) might be helpful but not deliver the entire truth. Therefore profit contribution was analysed taking into account market share of joiners and non-joiners of the programme. Based on an average profit contribution it was analysed if customers joining the programme show a market share or share of wallet that is higher than the one of non-joiners and high enough to cover the cost of the programme.

With regards to research objective four information on customers needed an analysis of significance comparing knowledge available prior to and after joining the programme. This was done by analysing information from databases available at the sample company as well as by qualitative research. Therefore this set of hypotheses is the only part of the research where a qualitative element was considered. All other parts were subject to quantitative analysis only. To be able to answer this question or to reject or confirm the hypothesis three people at the sample company were interviewed. The interviewees were the Customer Intelligence Manager, who is in charge of analysing all types of customer information and of making sure knowledge about customers is created, the Head of Customer Relationship Management, who leads the CRM department at the sample company and who most likely has the best overview of the data available related to customer master data and customer buying behaviour, and the Head of Marketing, who is the main person responsible for the customer reward programme and who therefore should be able to provide information on the programme relevant to this research.

In the following two Figures 7a and 7b (Research Plan I and II) an overview of how the research methods were developed from the initial research question is given prior to being described in more detail in section 5.2 “Research methodology derived from literature”.

*Figure 7a: Research plan I*



From the description of the hypotheses and how they are tested the research strategy or research plan was derived as shown in Figure 7a above. There are four parameters that have been identified to address these hypotheses – customer loyalty, revenue developments for certain customers, profit contribution with or without the programme and insight into customer master data and buying behaviour that the sample company obtains through the programme. Using mixed methods, namely a combination of quantitative and qualitative methods,

*“can stimulate a researcher to better define and analyse innovative problems and research questions in management research”* (Molina Azorín & Cameron 2010).

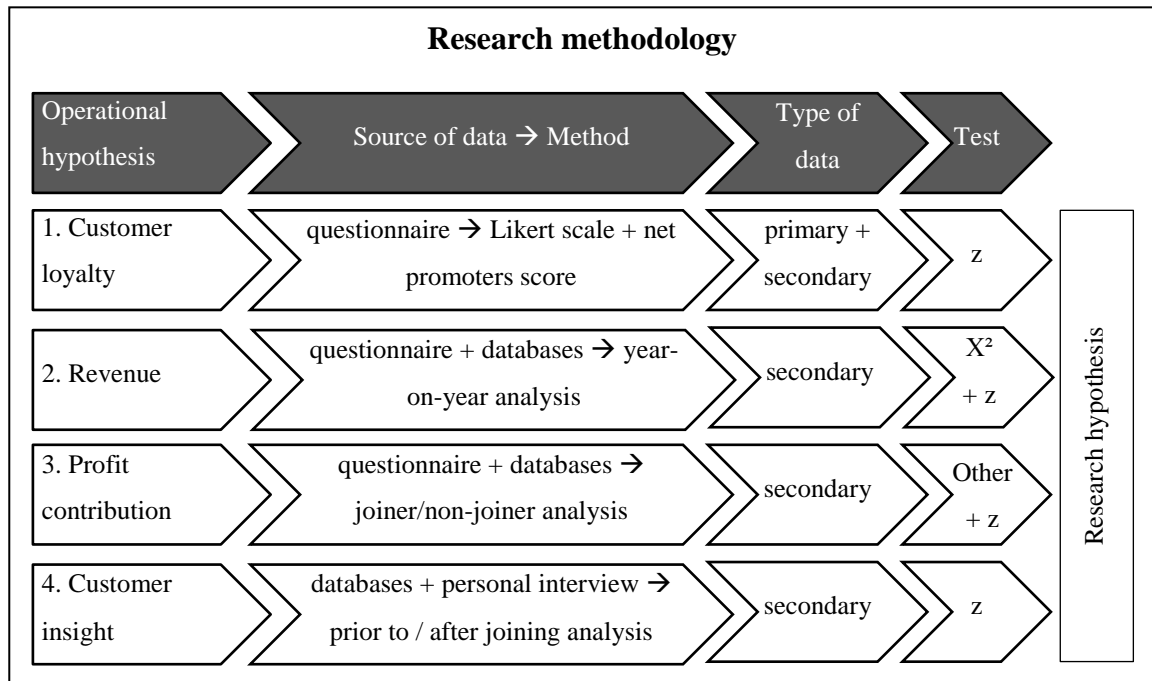
This statement justifies the use of both methods within the research strategy that is applied for this research.

To gather information on the four parameters that are necessary to be able to confirm or reject the research hypotheses, a questionnaire was undertaken. More information on the expected response rate will be given in section 5.3.1 “Sample type and size” and on the design of the questionnaire in section 5.3 “Sampling, Instrument design and testing”. The questionnaire was in the form of a personal interview either at the customer premises or by telephone. The interviews were conducted by a third-party service company. Therefore the researcher did not have any influence on the actual processing of the interviews. This might on the one hand be a disadvantage since the researcher does not have any opportunity to influence the interview process but on the other hand it prevents researcher bias. Advantages and disadvantages of making use of an independent service company for conducting interviews based on a structured questionnaire will be discussed further in section 5.3.1 “Sample type and size”. One of the main advantages of a questionnaire that is run through an interview however is that more complex questions can be asked, especially due to the fact that the interviewee is able to ask how to understand a question correctly (Brace 2008). The interviewer also becomes aware if a question was not understood correctly and has led to confusion (ibid.). Another advantage of a personal interview approach is that the questionnaire can be much longer than in a non-personal approach, where a long questionnaire might lead to a lower response rate due to the fact that interviewees might simply refuse to answer that many questions once they see them all at once (Anderson et al. 2009).

The question of which sample type – either random or non-random – makes most sense to follow the research strategy described above will be answered in section 5.3.1 “Sample type and size”. In the same section the size of the sample required will be discussed and analysed regarding appropriateness within the research strategy applied in this research. The issues of validity and reliability will be touched upon in sections 5.3.1 “Sample type and size” and 5.6 “Sample validation and limitations based on the sample” respectively. The aim behind addressing these issues is to make sure the results obtained and methods used are valid and reliable, where reliability always is secondary to validity since reliability cannot be judged if the method used is not valid (Miller & Yang 2008). Generalizability or transferability, which is often also referred to as external validity, is the extent to which research findings from the sample can explain the broader or overall population (Terre Blanche et al. 2007). The

issue of generalizability will be discussed in section 5.6 “Sample validation and limitations based on the sample”. An overview of the research methodology can be found in the following Figure.

*Figure 7b: Research plan II*



## 5.1 The research paradigm and theoretical framework

The research discussed is underlined by empirical research that will be described in more detail in the following sections that describe the “Research methodology derived from literature” (section 5.2) as well as in the section on “Sampling, Instrument design and testing” (section 5.3). The empirical analysis is intended to test theories that are implicitly contained in the operational and research hypotheses as stated above. These hypotheses were derived from literature and already existing findings from researchers in different industries.

The philosophical basis of the research described is more in the area of positivism than phenomenology. As mentioned above it is based on empirical observations that stem from questionnaires and raw data available from databases. It is accepted in the positivist theory that an approach as described above using such empirical observations is closely associated to positivism and that phenomena in the world can

be explained by connections or combinations of what we see as a result of causes that cannot necessarily explain causality (Wheelahan 2010).

Even though there is some involvement with the sample (potentially customers of the sample company or employees of the sample company), it does not go as far as the phenomenological approach regarding researcher involvement and interpretation. It is therefore suggested that to the extent that the data is exemplary for the entire industry the research outcomes should be valid in a sense that they can be generalised to the entire industry. The approach in terms of involvement of the researcher was therefore as passive as possible to the sample in order to not bias the research findings. An independent set-up of the questionnaires as well as an independent analysis of data gathered in these questionnaires and data obtained from databases was sought. The data acquired was to be analysed in a technical and descriptive rather than an interpretive way. This means the data was only analysed in a way that enables either the  $H_0$  or  $H_1$  operational hypothesis to be proven without any researcher interpretation that is based on the experience or knowledge of the researcher. The hypotheses were set up in a way to ultimately answer the operational and research hypotheses and subsequently answer the research question. That was especially true for the first three sets of hypotheses where the parameters customer loyalty, revenue and contribution margin were analysed by the outcome of data sets. In contrast the fourth set research objective was partially analysed by evaluation of structured interviews, which leave some room for researcher interpretation (see also “Research methodology derived from literature” section 5.2).

The data collected falls into the category of quantitative rather than qualitative data. Since it is intended to stay detached as much as possible from the sample to not bias the answers and findings the qualitative element is limited to the extent that the question (which will be explained in more detail in the following section 5.2 “Research methodology derived from literature”) “How likely is it that you would recommend companyXYZ to a friend or colleague?” implicitly contains a subjective element. A second qualitative element within this research stems from the qualitative interviews related to hypotheses four, where three employees of the sample company answered questions related to the status of customer knowledge regarding the availability of master data as well as buying behaviour.



Another distinction that has to be made regarding the theoretical framework is the one between deductive and inductive reasoning, where the first one uses a set of rules to derive from the general to the specific and to solve a specific problem (Windelspecht 2002, Prunckun 2010). The second one (inductive reasoning) uses specific observations to draw conclusions and to make an assumption on how likely an observed effect or result will actually occur in the future, meaning that this type of reasoning will not necessarily deliver the total truth for all future occasions or incidents (ibid.). Any research process uses inductive and deductive thinking, but deductive logic finds its most important application in the testing of hypotheses and for the inductive logic empirical evidence is the starting point that explains evidence or facts (Krishnaswamy et al. 2009). The research described in this paper is as mentioned above more related to positivism. The latter however is closely associated to the deductive orientation (Fuller 2007). Therefore the research as it is established and especially the way the hypotheses are derived from literature clearly indicates a deductive approach based on empirical data. From literature research questions and hypotheses were established based on findings of other researchers that are tested within the industry that the sample company belongs to. Based on the statement of Krishnaswamy et al. (2009) that empirical evidence is the starting point for explanations of evidence and facts it can be argued that the generalisation that is drawn from the tested sample to the overall population is however inductive reasoning.

## **5.2 Research method**

The research described was run in the form of a case study. This is defined by Swanborn (2010) as “a specific instance or manifestation of the phenomenon to be studied”. He furthermore argues that case studies are “the optimal strategy” if information about perceptions and decisions of groups of people are sought (ibid.). Yin (2003) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context”. These definitions justify the application of a case study for this research project.

Literature on case studies does however not specifically recommend a certain number of cases (Hine & Carson 2007). Even though Eisenhardt and Graebner (2007) point out that multiple cases are deemed to deliver more robust and generalizable theory, they also justify single cases if they are an opportunity to gain insight into a phenomenon that would otherwise not be possible. It is also confirmed by Yin (1994) that a single case study is appropriate if the case provides unusual access for academic research. He furthermore clarifies that this is valid if a researcher has access to his or her own firm and will be able to explore a problem in a real-life situation with all its strengths and weaknesses that normally would keep academic researchers from analysing it.

These statements and findings justify the use of a single sample (meaning customers of just one particular firm in a particular industry) as specified in this research. The research described also falls into the category “opportunity to gain insight into a phenomenon that would otherwise not be possible”, especially since the customers of the sample firm are the customers of the employing company of the researcher and potentially no other researcher would have access to the data necessary to run the research and answer the research questions developed above in a real-life situation.

### **5.2.1 Development of research methods**

Customer loyalty according to prior studies can be best measured by the proportion of customers that are willing to recommend the firm to other customers (Reichheld 2003, Reichheld & Seidensticker 2006, Keiningham T. et al. 2008). Researchers argue that this parameter can even explain corporate growth, meaning the higher the proportion of customers willing to recommend the firm or their products the higher the customer loyalty. This in turn shows a positive correlation with corporate growth. Questionnaires delivering a so-called “Net Promoter Score” (NPS) were used in these studies (Gutknecht, K., Ehe, G. 2006). The NPS is based on the question “How likely is it that you would recommend companyXYZ to a friend or colleague?”. It therefore shows the proportion of people contributing to growth through purchasing and referral behaviour (Brooks, L., Owen, R. 2009).

Questionnaires using a Likert scale to identify the extent to which customers are willing to recommend the company and their products to other customers are justified by the above-mentioned studies. They have been validated for scientific use in many publications (Schnell, Hill & Esser 2011, Babbie 2010).

Financial metrics – in this study increased revenue and increased profit contribution – are widely accepted in analysing the benefits of a customer reward programme. Especially the effect of such programmes on (potentially additional) sales have been analysed by other researchers (Leenheer et al. 2003, Glusac 2005). Backed up by these studies the usage of financial metrics as success factors of a customer reward programme seems to be appropriate and was used to answer the research question. Lauer (2011) argues that the increase of customer lifetime value is one of the main objectives of customer reward programmes. As such they have to be analysed in financial parameters. How revenues will develop from one year to another – prior to and after a customer has decided to participate in the reward programme – was analysed by using questionnaires and databases including customer information. Profit contribution was analysed for joiners of the programme versus non-joiners of the programme. Questionnaires needed to be used since information regarding volumes with individual customers was only partially available, especially prior to the introduction of the reward programme. This approach however was only able to analyse the development and comparison of sales. The approach for profit contribution is described in due course.

The data gathered from questionnaires to the extent that it is only generated for the purpose of the research falls into the category of primary data. This applies at least partially to the data gained through the questionnaires. Some of it is generated for different purposes and is used for customer relationship management at the sample company. This data is considered secondary data. Data gained from databases as mentioned above is also not especially generated for the purpose of the research but in the course of customer relationship management and normal business activities at the sample company. This data falls into the category secondary data as well. A description of the data sources can be found in section 5.3.1 “Sample type and size”.

The validity of the approach to analyse profit contribution as well is supported by the formula developed by Bruhn et al. (2000) as shown in the box below. Revenue ( $x \cdot p$ ) and profit contribution ( $x \cdot (p - k) - M$ ) are intrinsically part of this formula, which was established to enable a calculation of (potential) customer lifetime value.

*Figure 8: Calculation of customer lifetime value*

<b>Customer Lifetime Value</b>	
$CLV_{\text{potential}} = -I_0 + \sum_{t=0}^n x \cdot (p - k) - M_t$	
Where:	
p	= (customer-specific) product price
k	= cost per unit
x	= estimated units to be sold
t	= period
n	= number of periods of customer lifetime
I <sub>0</sub>	= costs of acquisition at time period t <sub>0</sub>
M <sub>t</sub>	= customer-specific marketing costs in period t

*Source: Bruhn et al. (2000)*

To be able to analyse profit contribution of joiners and non-joiners and to make a judgement whether or not a potential increased profit contribution of joiners is big enough to cover the cost of the programme, the cost of goods sold needed to be considered and an average margin to be calculated. This analysis was based on average values to be able to exclude extraordinary parameters such as weather conditions or special rebates to customers, for example compensation deliveries for goods that are not available on stock. Another means to have results that are not influenced by such extraordinary effects or special situations is the use of market share or share of wallet. The market shares of joiners versus non-joiners were compared and a margin or profit contribution calculation for an average customer undertaken. This approach is justified by the hypothesis that the customer reward programme has an effect on sales and profit contribution. The use of market share or share of wallet was successfully applied by Leenheer et al. (2003) in research

conducted in the Dutch supermarket industry and is deemed appropriate for this study as well. Each company needs to make sure that it does not give more benefits away than it actually receives back by the introduction of a reward programme. Therefore it is suggested that profit contribution should be increased at least as much as it covers the benefits that are given to customers.

Secondary data, such as customer profiles, customer total sales, units of products sold per customer or cost of products sold (see deduction of formula required), was pulled from databases available at the sample company and transferred into Excel. The data needed to be arranged in the form of tables showing data on a transactional level that allows calculation and analysis. As a result the average values for profit contribution for product category and type of customer were obtained.

The parameter customer insight was measured by the proportion of customers that deliver relevant information through the reward programme. This information is the location of the customer, which crops are cultivated and what the size of the farm is. Interviews with people responsible for CRM within the sample company delivered qualitative information for analysing the hypothesis. Verbal data however in qualitative research is obtained by means of open or guided/structured interviews (Mayer 2006, p. 36). The decision was made to prepare a guidance to make sure all relevant questions were asked. According to Schreier (2012) qualitative content analysis can be best used if the following conditions are fulfilled:

- Data requires interpretation
- Verbal data
- Visual data
- Data sampled from sources such as documents or internet
- Data collected by researcher such as interviews or focus groups

Since the data collected is verbal data through interviews that requires interpretation, the use of qualitative content analysis is justified. The data is supported by information from databases that show the number of farms, hectares cultivated and money spent on products that are relevant to the research. This covers the total population that is covered by the research compared to the proportion of information

gained about the total population prior to and after the introduction of the customer reward programme.

Triangulation in this research was achieved in different ways:

1. By using different research methods – questionnaires on the one hand and analysis of statistical figures from statistical databases on the other. Questionnaires to a certain extent deliver qualitative (e.g. questionnaire including willingness to recommend products and company) and quantitative data whereas statistical figures only deliver quantitative data (e.g. sales-related figures).
2. By using different cross-sectional studies that cover different time periods and look at characteristics at different points in time. The analysis of the development of financial parameters prior to and after the introduction of the programme looked at a time frame of at least one year from one period to another, whereas the net promoter score for example was only considered at a particular point in time.

### **5.3 Sampling, Instrument design and testing**

The sample company is the German subsidiary of a world-leading company in the agribusiness industry. More than 26,000 employees in more than 90 countries work for them. The German operations are run by about 500 employees at three main offices and four sales offices.

Customer loyalty was analysed in an extensive cross-sectional study over at least half a year within the sample company. Even though the sample is one there were a large number of customers that needed to be interviewed. This was done using questionnaires and surveys. It was agreed with the sample company that the questionnaires were undertaken by a market research company. The advantage of this approach is that more customers could be asked than would otherwise be possible if the researcher collected the data on his own.

Customers needed to be segmented during this study to find out on which group of customers the customer reward programme has an effect and on which it doesn't. The segmentation criteria are size of customer business and crops cultivated. Here it needed to be considered that there might be a group of customers that cannot be segmented since they do not provide information about their business. In this context the size of the group of non-responders (customer not willing to provide information about their business in the context of the reward programme) was of particular interest.

Due to the power of the market research company it was possible to approach customers directly and some were surveyed in person and some by telephone. This is the standard approach for the primary data that is collected particularly for the research but also for the secondary data that is collected for other CRM purposes. The questionnaires for secondary data do not significantly change from year to year to enable comparison between these data. Each interviewer receives an introduction prior to approaching the customer. Each question – this applies to standard annual questions as well as questions specifically set up for the research – is written on an interview guideline that needs to be followed by the interviewer. The interviewer however is instructed to only ask the questions that are written down in the questionnaire. All data that is described as secondary data in the following was collected as part of a regular major survey run by the market research company. The answers to questions 1 to 3 (as described below) are considered primary data. These questions were added to that survey specifically for the purpose of the research. The proportion of the data considered, was only the data from the survey that was relevant to the research (primary data + sales data per customer).

The standard (secondary) questionnaire contained questions related to the following parameters:

- Statistics and profiles related to the customer asked
- Market size
- Product market share
- Company market share
- Active ingredient market share

- Segment such as insecticides, herbicides, fungicides, additives etc. market share
- Volume of products used by customers
- Farm gate prices
- Number of applications of products used by customers
- Technologies used

Primary data that was collected especially for the research needs additional questions. These questions were included in the standard questionnaires. All questions (primary and secondary data) can be found in Appendix 1.

The additional questions that are considered primary data since they are especially set up to answer the research questions will be described in the following. These additional questions as described in the following paragraphs have been derived from the literature review and the way the research questions and hypotheses were set up as a result of the literature review. The questions were designed to address the operational hypotheses and to be able to present an answer to them. The starting point for asking these questions was the work from Reichheld (1996) that found a small increase in customer retention rates of only five per cent can produce an increase in the net present value of an average customer from 35 per cent up to 95 per cent depending on the industry. Customer loyalty according to prior studies can be best measured by the proportion of customers that are willing to recommend the firm to other customers (Reichheld 2003, Reichheld & Seidensticker 2006, Keiningham T. et al. 2008). The question related to primary data used in this study was therefore taken directly from prior studies (“How likely is it that you would recommend companyXYZ to a friend or colleague?”) that were used to calculate the “Net Promoter Score” as an indication for customer loyalty (through people contributing to growth through purchasing and referral behaviour) as per definition in this study (Brooks, L., Owen, R. 2009, Gutknecht, K., Ehe, G. 2006). The other questions related to primary data are questions that help to define the time frames and participation in a customer reward programme necessary to identify the relevant parameters for customers that answer to the question related to recommendation and referral behaviour. The measurement scales were also taken from prior studies and are described in more detail in the following text.



The first question (Question 1) was: “*Do you participate in a customer reward programme for crop protection products or seeds?*”. The customer/farmer had two answer options with “yes” and “no”, where yes means that he or she participates in any of the customer reward programmes that are available on the market. The question is related to the current period of time and therefore reflects the current situation of the farmer. The next question (Question 1a) was related to the first question and only needed to be answered if the answer to the first question was positive, meaning the customer/farmer answered the question with “yes”. The question was “*if so, which one?*”, where “if so” means whether the first question was answered with “yes”. Four different answering options were given in the questionnaire as follows:

- Bayer (Premeo)
- BASF (BASF ist mehr)
- Syngenta (Bonusland)
- Other \_\_\_\_\_(Name)

The first three answering options reflected the three main programmes that are available on the market and where there is a high likelihood that the customer/farmer is participating in the programme. The final fourth answering option was “other”, where other programmes can be mentioned. Such programmes might be the ones from the competitors of the sample company like DuPont, Pioneer, Dow AgroSciences, KWS or some smaller companies. The two questions described here can be considered as a set of questions.

The second set of questions for primary data collection was related to the participation in a customer reward programme in the year 2012. The answers from this set of questions were especially important for hypotheses 2 to be able to perform a year-on-year comparison related to the revenue development with or without programme participation. Therefore the first question of this set of questions (Question 2) was: “*Did you participate in a customer reward programme for crop protection products or seeds in 2012?*”. Again two answering options were allowed with “yes” if the customer/farmer did participate in a customer reward programme in

2012 and “no” if the customer/farmer did not participate in 2012. The related question (Question 2a) was set up in the same way as in the first set of questions for primary data collection as: *“If so, which one (2012)?”*. The question aimed to find out which of the programmes were joined again with the same answering options as in the first set of questions with:

- Bayer (Premeo)
- BASF (BASF ist mehr)
- Syngenta (Bonusland)
- Other \_\_\_\_\_(Name)

Here also the customer/farmer had the choice to simply confirm one of the three main programmes on the market or to tell the market researcher if any other programme was joined. Of course this question also only applied if the first question of this set of questions was answered with “yes”.

The third set of questions aimed at primary data collection was directly related to the first set of hypotheses. They were introduced to answer the question of whether or not a customer reward programme increases customer loyalty for those customers who participate. As described above a net promoter score needed to be developed, which requires knowledge about the likelihood of referral of products or company to other potential customers such as friends or colleagues. Therefore the third additional question (Question 3) in the questionnaire is: *“How likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague?”*. The respondent had answering options on a scale from one to ten, where one means “very unlikely” and ten means “very likely”.

After the data was collected it needed to be structured according to the information requirements that are implicitly contained in the operational hypotheses. Therefore the raw data that was recorded on the questionnaire was transferred to a database. The data was structured in rows and columns, with the questionnaire parameters (e.g. product, area cultivated, cost per hectare or answers to the specific questions that are considered primary data) sorted in columns. For each different answer of a customer a single row was entered into the database. Since a customer might have used

different products there is a row for each product that was bought by the customer. All other answers that are the same for a particular customer, for example related to the questions on recommendation of the sample company (hypotheses 1), were copied into the relevant columns and therefore are the same for each product that the customer gave input to. Other parameters such as price and area treated might also have been different per product. During the analysis of the data from the database it was very important to consider which input is given per product and which data only relates to the customer as such. Therefore the raw data needed to be structured in a way that each parameter that is not related to the products bought by the customer but to the customer itself is filtered per customer and only considered once per customer during analysis. The raw data from the database was provided to the researcher in an Excel spreadsheet that was structured in rows and columns as explained just above. The individual parameters that were delivered through the database and subsequently in the Excel spreadsheet are explained in more detail in section 6.1 “Structure and content of data available for research and modifications”. On top of that there are parameters that needed to be assigned to each customer based on the results of the questionnaire or the raw data delivered. The customer segment needed to be identified for each customer. To do so the customer value of each customer needed to be calculated by calculating the costs per hectare (this is money spent by the customer for a particular product per hectare) and the parameter variety area treated unweighted (this is the area treated with a particular product). This was done for each product that was used by the customer and summed up for all products of this customer, delivering a so-called customer value. Based on these individual customer values each customer was then categorised into a customer segment – Partner, Dialog, Info. For each of these segments the sample company developed thresholds based on customer value.

After the preparation of the raw data in a way that it provided the right information per product and customer as described above, it needed to be structured to become useful in terms of providing answers to the operational hypotheses. How the data was sorted after collection and modification as described above is shown here:

Hypotheses 1: “How likely is it that you would recommend the sample company or its products to a friend or colleague?”

Segment	Type of customer	Number of farmers										
Scale		very unlikely					very likely					
		0	1	2	3	4	5	6	7	8	9	10
Partner	reward programme member											
	non-participant											
Dialog	reward programme member											
	non-participant											
Info	reward programme member											
	non-participant											

Hypothesis 2: How has revenue developed from one year to the next?

Here only reward programme members that joined the reward programme in 2013 and did not participate in 2012 are called “reward programme member”. All customers that did not join in either 2012 or in 2013 are called non-participants.

Segment	Type of customer	Number of customers with increased revenue	Number of customers without increased revenue	Average revenue per customer	Average revenue change in %
Partner	reward programme member				
	non-participant				
Dialog	reward programme member				
	non-participant				
Info	reward programme member				
	non-participant				

Hypothesis 3: What does the market share look like?

Segment	Type of customer	Share of wallet in % crop protection products	Share of wallet in % seeds products	Share of wallet in % overall
Partner	reward programme member			
	non-participant			
Dialog	reward programme member			
	non-participant			
Info	reward programme member			
	non-participant			

Hypothesis 4: For how many customers was information available prior to and after the introduction of the programme?

Segment	Type of customer	Number of customers with customer information available prior to introduction of reward programme	Number of customers with customer information available after introduction of reward programme
Partner	reward programme member		
	non-participant		
Dialog	reward programme member		
	non-participant		
Info	reward programme member		
	non-participant		

### 5.3.1 Sample type and size

Due to the fact that customers need to be segmented a stratified sample would theoretically make sense to not have biased results for the overall population in a way that a certain segment of customers is over- or underrepresented. Given the fact that only a certain range regarding response rate can be expected and that this response rate very likely is not distributed equally over different customer segments, a random sample was selected. Another advantage of using a random sample is that the issue of internal validity is addressed as it removes the risk of researcher selection bias (Altman 2006). Validity in general terms is the ability of the concept or characteristic in question to systematically be measured by the methods applied,

which is especially an issue in qualitative research, where the results may depend on the skills of the researcher and might be biased by his or her opinion or assumptions about the research object or causality (Pellissier 2007). As mentioned above validity was addressed by having the researcher detached from the customers that answered the questionnaires. Another means to ensure validity is to use recognised research methods and to make sure the methods used measure what they intend to measure. How the measures fit is described above in section 5.2.1 “Development of research methods”. For the fourth set of hypotheses, which is analysed qualitatively to a certain extent, the researcher made sure that only questions were asked in an open interview that were targeted to the usefulness of the data obtained through the customer reward programme and the amount of data generated compared to the knowledge about these parameters prior to the introduction of the customer reward programme. The researcher needed to make sure that no misuse of stimuli, mistakes of interpretation or bias were present to obtain valid results (Pellissier 2007). This was addressed by not only asking open questions and not guiding the interviewee into a certain direction and by only taking the answers into consideration as they were verbalised without any personal interpretation. Validity also is ensured by backing up this information with hard facts or quantitative data from databases as described in section 5.2.1 “Development of research methods”.

Literature on questionnaires reports response rates between 13 and 47 per cent (Theobald 2003, Anderson & Fulcher 1974, Byrom & Bennison 2000). Interestingly these sources also report significantly higher response rates for mail-based questionnaires compared to web-based questionnaires (Theobald 2003, p. 156, Hansen & Smith 2012). Even higher response rates are reported for personal approaches, such as telephone interviews or direct personal interviews at the customer site (Siemiatycki 1979). On top of that the personal contact of the interviewer by visiting the interviewee in person or on the phone has a motivating effect on the respondent to actually answer the questions and in addition to that improves response accuracy (Bowling 2005). Therefore personal interviews either on the customer’s premises or on the phone were preferred. The third-party service provider provided that service and collected the secondary data in this way. The primary data was included in the same questionnaire that had been used for the

collection of secondary data in prior years and therefore had the same likelihood of being answered.

The dependency on the third-party research company regarding the selection of the sample certainly is a weakness. On the other hand as mentioned above it excludes potential researcher selection bias. It also enabled the researcher to gather a huge amount of highly qualitative data, which would not be the case if the researcher had to collect all the data on his own. In this case questionnaires would have had to be sent out to customers with a potentially lower response rate leading to a much lower number of respondents. The expectation in this case would be 1,000 questionnaires with an expected response rate of about 20 per cent, leading to a number of about 200 data rows or customer answers.

In practice there is always a trade-off between precision of the results and the research budget and resources available regarding the number and size of the sample (Altobelli 2007). Weinreich and von Lindern (2008) argue that the number of samples alone does however not allow conclusions to be drawn regarding representativeness. They explain that even though accuracy tends to increase with sample size it is more decisive to critically analyse to which group (here segments of customers) the respondents belong to. With an estimated response rate of 80 per cent expected for personal/telephone interviews, about 2,500 customers needed to be asked to answer the questionnaire to deliver a number of 2,000 usable data sets. By comparing the number of potentially 200 data sets that would have been the result of the researcher's own data collection versus a number of potentially 2,000 data sets by using the third-party research company, the benefit of making use of such a company becomes clear. The third-party research company is the leading market research company in the agribusiness industry having 25 years of experience, providing services to all big competitors in 70 countries worldwide. The sample company started working with them in 1999 and over the years has discussed and ironed out all issues concerning reliability.

The customers invited to answer the questionnaire were end customers of the sample company. Wholesalers and retailers as part of the supply chain were not considered. Customers of the sample company are all types of farmers, which can be classified

into small and part-time farmers, medium-sized or family farmers and large-scale farms. A classification in terms of A, B and C customers was done by the sample company and was used as customer classification criteria for the research.

Questionnaires were run by a third-party market research service company for agribusiness companies. Questions regarding market share and revenue are standard questions that are asked for other CRM purposes and were therefore considered secondary data. It was agreed that other questions, especially the questions related to the operational hypotheses, would be included in the same questionnaire. This part of the data was therefore regarded as primary data. The use of different types of data (here primary and secondary data) on the same research object is a good opportunity for triangulation and a chance to increase the validity of the results. More insight into the issue of validity will be given during the discussion in the next section.

### **5.3.2 Hypotheses testing**

In chapter 4 “Research question, aim, objectives and hypotheses” it was stated that the research questions were addressed by hypotheses testing. Each set of operational hypotheses that was derived from the research aim and subsequently the research objectives needed a different kind of data analysis and hypothesis testing. The hypotheses tests that were conducted will be described in the following.

As described above, a Likert scale that was applied in the questionnaire was used to calculate a net promoter score by analysis of proportions. This was done for the population of programme joiners and non-joiners. The difference between so-called promoters (proportion of respondents answering with 9 or 10 on question 3 “*How likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague*” (see section 5.3 “Sample design and details of the data collection process”)) and so-called detractors (proportion of respondents answering this question with 1 to 6) delivers the net promoter score (Keiningham et al. 2007). Both net promoter scores (for programme joiners and non-joiners) needed to be tested on significant differences by testing a hypothesis about the difference in two population proportions  $\pi_1$  and  $\pi_2$ , when the combined sample is at least 30. This delivers a z-distribution that either indicates support for the null



hypothesis or the alternative hypothesis. All calculations were done directly in Excel using the data from the tables prepared to support the analysis. Appropriate tests for the assumed independent data were done as described in this chapter. To make sure the reasoning behind the results for members vs. non-members were understood the 2013 programme joiners were considered separately and results were compared to the members that had been in the programme in 2012 and 2013. The reason for this approach was to find out whether programme joiners showed a tendency either to already be loyal or only to become loyal after a certain time within the programme.

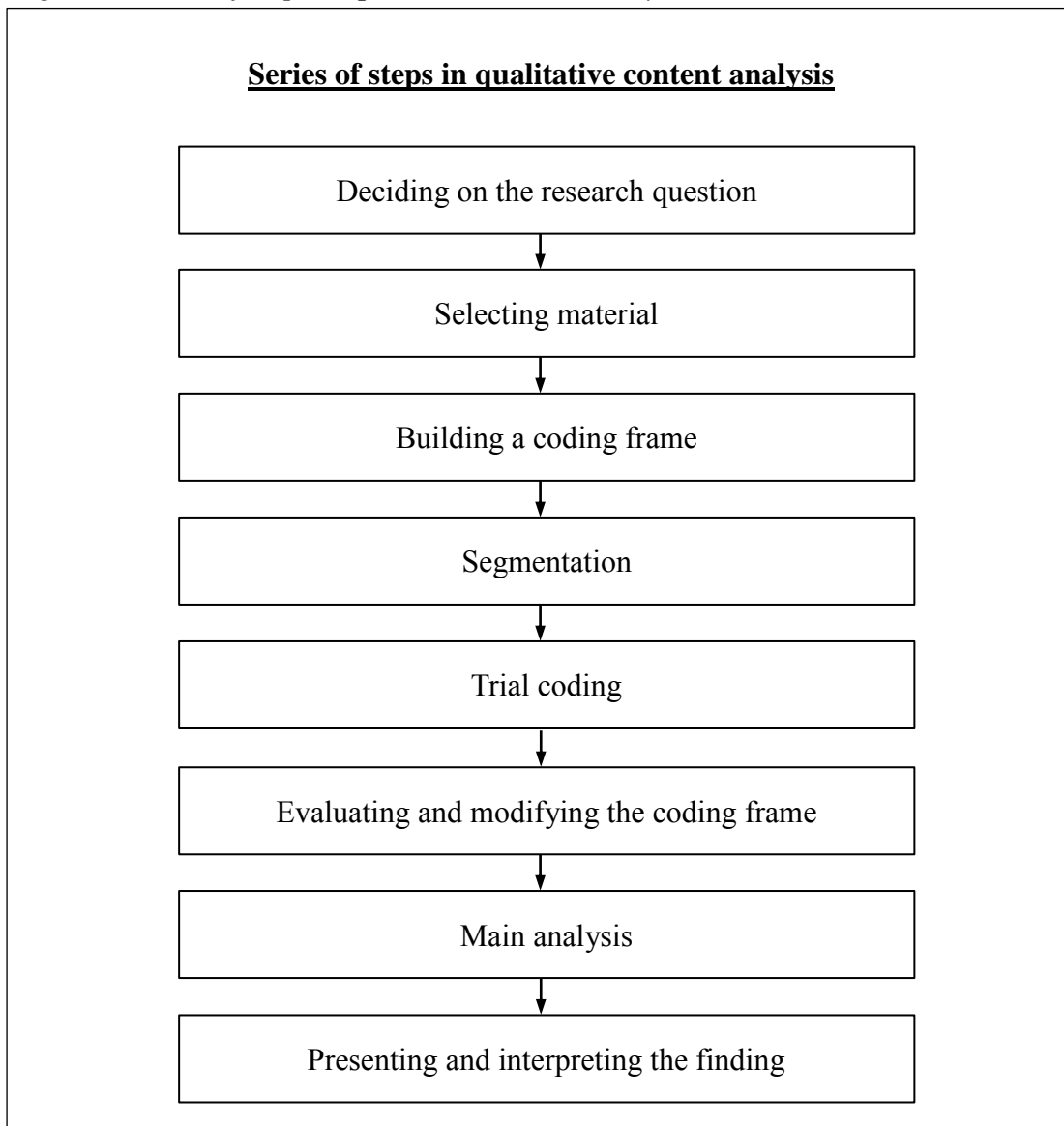
Regarding turnover prior to and after joining the programme, customers were asked to state their turnover with the company. Out of this it was analysed if turnover had increased from year 1 to year 2. This gave a yes / no answer and the results were compared using “testing for an association between variables”. A chi-squared statistic was used for this. The null hypotheses states that there is no relationship between these two variables, meaning that the value for one variable is not influenced by or related to a change in the other variable (Gravetter & Wallnau 2014).

Average profit contribution figures for average customers were calculated as stated above as a result of the share of wallet figures. To test the set of operational hypotheses that was developed for profit contribution it was necessary to analyse whether or not the profit margin is higher than the additional cost that was incurred for the benefits that are given to the customer. For the cost of the benefits average figures based on the costs of the goods that the customer can potentially choose were used.

Insight into customers’ buying behaviour and customer information is simply measured by the number of customers that the company had insight to prior to and after the introduction of the programme. The qualitative data from the interviews was examined by qualitative content analysis. According to Müller (2006) the best-known approach to qualitative content analysis is a process model developed by Mayring that follows a systematic methodology. Several steps are included in this methodology that a researcher may want to process to analytically separate different categories out of raw material such as texts or interviews (Lamnek 1993). This

qualitative content analysis however is not to be understood as unchangeable but rather needs to be adjusted to the concrete aim and the needs of a particular analysis (Müller 2006). The model according to Mayring therefore serves as a blueprint that is adjusted according to the target of the interpretation and differentiates between three basic forms of qualitative content analysis, namely aggregation, explication and structuring (Träger 2009). The steps derived from the methodology according to Mayring are shown in the following Figure.

*Figure 9: Series of steps in qualitative content analysis*



*Source: Flick (2014)*

For this research the model above was used as guidance for the qualitative hypotheses where the decision on the research question was made above and a

decision on the material had been made by conducting interviews that were analysed. The model however was adjusted to the specifics of this research. According to Flick (2014) a coding frame consists of categories and subcategories, where main categories are the aspects that the researcher wishes to obtain more information about and the subcategories specify what was found out from the raw material related to the main categories. Within this research the main categories were extracted from the qualitative hypotheses and are customer buying behaviour and customer information. In the following the subcategories will be called categories only. They were developed out of the analysis of the interviews. Trial coding was not explicitly done but the categories that emerged after the analysis of the first interview were revised and challenged during the analysis of all other interviews. If categories needed to be changed or if new categories emerged they were considered and checked again on the interviews already analysed. Presentation and interpretation of the results was done as a final step and is described in the results section of this text. As stated above the techniques available for the main analysis are aggregation, explication and structuring. Aggregation is described as a method that first derives selection and analysis criteria from theory and after that reduces the material down to categories in a process of reduction of the material (Mayring 2002). This method was chosen for the research presented here since it seems most appropriate. Reduction as required for this method will be achieved by assigning categories to the most important statements of the interviewees.

A specialist SPSS package was not used. All data collected was sorted in Excel tables. The vast amount of source data needed to be pre-structured by the research service company according to the instructions of the researcher. Data analysis was also done in Excel. This is advantageous to the research described since it delivered much flexibility to analyse the data in a way that is beneficial to the research and if additional questions appeared in the course of the research it enables the data to be restructured to answer these questions as well.

Operational hypotheses one to three were related to membership in a customer reward programme. The fourth set of hypotheses were related to the introduction of a customer reward programme. Different approaches had to be followed due to the fact that the data to answer the research question for the first three hypotheses was

available when the programme was already running. Also the fact that they intended to explain a difference within a population made it necessary to differentiate between members and non-members. For the fourth set of research objectives was different in a way that it tried to explain a difference between two different time frames, which were prior to and post introduction of a reward programme.

#### **5.4 Fieldwork and analytical procedures**

As mentioned above a third party service market research company was used to collect the primary as well as the secondary data that was used a source for the research. The research company with its long years of experience uses a data base of all customers. Out of this data base customers are pulled by chance whereas customers that participated in the survey in prior year were preferred and they were asked if they were willing to participate again. All customers that were not willing to participate again created a space for another randomly selected customer out of the customer data base.

The interviewees were instructed specifically to ask only the questions that were given to them in the questionnaire without personal interpretation. The data was then entered into a database at the research company. The data from this data base was sent to the sample company in a next step in an Excel file. Prior to this however each customer that was asked during the questionnaire was assigned a fake customer number and prior year data was put into this Excel file using the same unique fake customer number for each individual customer. This Excel file was used to make all the calculations that are described in the results section.

#### **5.5 Triangulation**

The findings for the parameter customer loyalty were triangulated by cross-sectional studies such as measuring financial success of the programme. Proper triangulation is a means of validity checks (Schirmer 2009). Therefore sales and contribution margins were compared prior to and after joining the programme or from one year to another. Since precise information regarding products sold is only available after a

customer joined the programme, it was intended to compare margin development from the first to the second year after joining the programme to measure whether potential additional sales also lead to an increased margin that compensates for the benefits that have been given to the customer in the course of the reward programme. This approach however ignores that after joining the programme a jump in revenue and margin might happen that compensates for the cost of the programme. Therefore share of wallet was analysed for joiners and non-joiners and an average profit contribution derived as described for the relevant hypothesis and parameters in chapter 5 “Research methodology” and section 5.2.1 “Development of research methods”.

## **5.6 Sample validation and limitations based on the sample**

Including the facts just now mentioned there are clearly limitations to the research as follows:

1. Margin development is not available based on actual figures prior to and after joining the programme.
2. Sales prior to joining the programme are only available based on estimates made by sales people during discussions with customer.
3. Only a limited amount of customers can be analysed due to the huge amount of data.
4. Only one part of the sample company, namely the crop protection business, can be analysed regarding the development of profit margin in detail since for other parts of the sample company (seeds business) information regarding cost per product is not available. It is however possible to work with reasonable estimates that give a very good indication and enable the related operational hypothesis to be answered.
5. The profit margin that is used is based on actual cost from a particular year. This means it might not totally reflect the true cost in the following years. To be able to perform an analysis it is however important to use the same cost for different comparison periods. Otherwise the analysis is subject to changes in prices and inflation or any other parameters that are not part of the research which might confuse the results of the research.

6. It is agreed with the sample company that all data related to cost per product will not be published. This means the results are not fully transparent but the approach on how the researcher came to the conclusion and how the analysis was done is clearly shown.

Insight to customers was measured by comparing availability of customer information prior to and after introduction of the programme.

Triangulation was achieved by the use of different research methods as described above.

Data sources are mainly customers of the company and collected information stored in databases at the sample company.

Data availability however is an issue that needed to be considered during this research. There is clearly a gap between what would be ideal regarding data availability and what is actually available. To the extent as described above data was gathered during this research using the means proposed above. Another data source was information delivered by customers participating in the reward programme. These customers provided information about their business but also about their turnover with the sample company. This information was analysed as described above. It was however limited in that there is no full transparency, especially in the comparison to the situation prior to the introduction of the reward programme. The research therefore was not able to achieve a result that is valid with 100 per cent certainty. It was only able to describe a tendency up to a certain level of certainty.

The reliability of the research described was however ensured by using different research instruments on the same research object and taking samples at different points in time (Cohen 2009). This is especially important since an established method (net promoter score) was used in a different context compared to prior studies (see also section 5.8 “Significance”).

According to Terre Blanche et al. (2007) it is important to obtain generalizable results, meaning that they are applicable to the entire population and if research is conducted in an experimental setting in the real world. Furthermore they argue that

generalizability especially has a strong significance if universal theoretical claims are sought and if a researcher wants to describe populations. Generalizability however is rather an issue in qualitative than in quantitative research and is considered an essential limitation of qualitative studies (Holm & Jonas 2004). For the research introduced in this text these statements have a few implications. First of all the research methodology described above states that most of it is related to quantitative and positive research with only small phenomenological pieces. This means generalizability is less of an issue with the quantitative / positivist than the qualitative element of the research. Generalizability however is important for this research since the results that were obtained first of all are considered to describe a general pattern related to customer reward programmes and second the sample that was taken is intended to describe the overall population. To make sure the results from the sample taken are generalizable, the number of sample items need to be big enough. Plowright (2011) argues that the likelihood of obtaining generalizable results increases with the number of cases and the number of participants that take part in the research. The number of cases in this research related to the number of sample companies is one within one particular industry, which theoretically indicates a low generalizability. This however is mitigated by the fact that first the results from the questionnaires at least for the third set of hypotheses delivered results not only for the sample company but also for the competitors, meaning that the entire market is covered. Secondly, as mentioned above, the number of participants in the study was very high. The generalizability therefore is limited but shows implications for any company in similar circumstances, meaning that results can be deemed generalizable for companies running a similar business in the agribusiness industry.

## **5.7 Ethical considerations**

With regard to the company, its customers and employees of the company any information provided was related with due consideration. Where individuals were not willing to collaborate, provide personal information or to support the research they were not forced by any means to do so. Anonymity of individuals contributing to the research was guaranteed and research data was used fairly and responsibly.

The researcher accepts the ethical responsibility to act in accordance with Heriot-Watt University regulations and all parties involved, especially:

- The sample company
- Employees of that company
- Customers of the sample company
- The research community
- And the candidate himself

Except the described support by the third-party research company running the questionnaires, there was no other assistance in preparing the research. Apart from the undertaking of the questionnaires, the only assistance given by the third-party company are documentation already produced to explain and introduce the customer reward programme to the market.

To make sure the researcher meets confidentiality requirements of the sample company, the researcher has agreed to share final versions of the initial proposal and the thesis with the Head of Marketing of the sample company. It is also agreed that commercially sensitive data will not be shared (see also limitations to this research).

## **5.8 Significance**

Since research has never been conducted on reward programmes in the German agribusiness industry, a knowledge gap justifying the research was identified. While this is a good opportunity to increase the knowledge base by new findings it is also a high-risk option. The research shows whether or not the introduction of a reward programme in this particular industry is beneficial. Therefore the research directly delivers applicable results for the sample but also for each company in that industry.

The research implicitly also analyses reward programmes in the area of a B2B relationship. This is important since most analyses of reward programmes so far only looked at the effects of reward programmes in a business-to-consumer relationship where the target of the reward programme is an end customer or consumer of the



product. Therefore new knowledge is potentially gained that can be analysed for other B2B relationships in different industries.

It is also worth mentioning that the net promoter score in prior research was used mainly to analyse entire companies and to draw conclusions regarding overall customer relationships and potentially corporate growth based on improved customer relationships (e.g. Brooks & Owen 2009, Reichheld & Markey 2011, Hämmerlein 2009). There is no evidence that the net promoter score as derived above in the analysis of a customer reward programme has ever been used. Therefore the research in a wider sense also proves the applicability of this measure on reward programmes.

## 5.9 Summary

Research question:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

Aim of the research

- whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme.

The research objectives:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme
- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

In this chapter the research methodology was explained in detail. It was described why this research is more in the area of positivism than phenomenology and why the

data falls into the category quantitative rather than qualitative. In the research method section the use of instruments such as Likert scale, financial metrics and questionnaires was justified. The appropriateness of the uses of a single sample was derived from literature and justified as well. The size of the sample was explained in the following section and how the hypotheses were tested was described in detail.

In the section on fieldwork it was described how the researched took control over the sample and how the questionnaires were done by the third party service market research company. The sections on triangulation, sample validation, research ethics and significance were necessary to discuss all relevant issues under these headlines related to this research. It was said that the researcher complied to the high ethical standards required to conduct this research and it was shown that the research delivers a significant contribution to the research topic.

## **6 Results of the data analysis and questionnaires/interviews**

After the description of the research methodology and the development of the research hypotheses, the actual outcome of the research and the results of the data analysis will be described in this chapter.

To do so the first step will be to explain the data that became available through questionnaires. In section 6.2 “Results analysis” the outcome of the calculations that delivered a first set of data as well as the calculations themselves will be illustrated. This section will be subdivided into the three operational hypotheses and within these subsections the significance of the findings will be shown. This is done prior to the following section that is concerned about mirroring the results to the literature that has been discussed in earlier chapters.

Related to the significance testing it must be recognized that even though most of the results of the raw data analyses seemed unambiguous a significance test was necessary to understand if the  $H_1$  hypotheses needed to be rejected and whether or not the results led to a conclusion.

There will be a separate section for the presentation of the results of the analysis regarding research objective four due to the fact that it requires a qualitative discussion, which is different from the first three hypotheses, where only quantitative data is analysed.

Reading this section it needs to be kept in mind that, as explained earlier in this text, there are many different types of promotions such as discounts, extra volumes, coupons, samples etc. The analysis done here is however related to a specific type of promotion, namely offering bonus points for each purchase and allowing the customer to exchange them into goods or services that are listed in a catalogue issued by the company (in this case the sample company) that offers the participation in the customer reward programme. To make it clearer participation in the programme means services or goods can be obtained based on the volume of the transactions with the sample company. Rebates and discounts that are given in the course of other programmes are not in the scope of this analysis. This is especially the case since

they are mainly given to wholesalers and retailers that are not end customers of the sample company but distributors, who are not targeted by the programme and are excluded from the research questions. The focus on the end customers and the reason for that was already explained in section 2.1.3.1 “Definition of target markets and market segmentation”. The description of the different types of promotion however had to be made to define the research object precisely.

As a final step in this chapter a separate section will reflect on the results of the analyses in the context of the literature described at the beginning of this text. This will be the basis for the final chapter describing the research results in the light of business applicability and recommendations for further research.

Prior to the discussions the key results will be presented. After testing and interpretation of the results it was concluded that in all three research hypotheses the  $H_1$  Hypothesis could be confirmed with different levels of significance. Hypothesis two was an exception with respect to the fact that an additional test was done as a result of the initial hypothesis testing and considerations about the testing that were made throughout the research. All the results as well as the calculations will be explained in the following sections.

*Table 5: Consolidated results of hypotheses testing*

<b><u>Consolidated results of hypotheses testing</u></b>		
<b>Hypotheses</b>	<b>Result</b>	<b>Level of significance</b>
Hypotheses 1	reject $H_0$ hypothesis, confirm $H_1$ hypothesis	5 per cent
Hypotheses 2	reject $H_1$ hypothesis, confirm $H_0$ hypothesis	n/a
Hypotheses 2 test 2	reject $H_0$ hypothesis, confirm $H_1$ hypothesis	1 per cent
Hypotheses 3	reject $H_0$ hypothesis, confirm $H_1$ hypothesis	1 per cent

## **6.1 Structure and content of data available for research and modifications**

The data that was gathered by an independent market research company delivered a set of data consisting of 29,905 single row items. In total 2,547 customers delivered input to the questionnaires. This however was the total number of customers including the number of customers that answered the questionnaire in 2012. In 2012 however the special questions related to this research as shown under section 5.3 “Sample design and details of the data collection process” were not included. The number of customers that answered the questionnaire in 2013 was 2,128 out of 2,500, delivering a response rate of 85 per cent. Not all these customers however gave useful answers to all questions. For the question related to hypothesis one for example – “How likely is it that you would recommend the sample company or its products to a friend or colleague?” – there were only 1,485 usable answers that could be taken into account for the calculations. The rest of the customers did not answer at all or answered with “don’t know”. From the numbers given above it can be derived that the response rate for this particular question was much lower than the overall

rate taking into account how many questionnaires were answered overall. The rate was (1,485 out of 2,500) about 59 per cent. The comparably low response rate could be explained by the type of question. Here the opinion of the respondent was asked in contrary to the other questions where hard facts were asked. Questionnaires that did not provide an answer to all questions and parameters were still considered in the raw material tables. The initial data was put into an Excel spreadsheet (the set-up of this Excel sheet was described above in more detail in section 5.3 “Sample design and details of the data collection process”) no matter whether or not all parameters in the relevant columns contain an answer or not. Therefore all answers, also the incomplete ones, were considered during the analysis unless the parameter for a particular analysis was not available for a certain line item due to a missing parameter or answer of the customer related to this line item. This also means that none of the questionnaires were discarded due to missing answers. They were just not considered if a missing answer was necessary to run a particular analysis. The only questionnaires that were left out entirely and that were not considered during analysis were the ones that customers did not respond to at all.

The raw data as it came from the questionnaires with primary and secondary type of data questions was therefore structured in two parts. The first one was the answers to the recurring questions that are asked every year and the second part was the answers to the questions especially included only for the purpose of this research. The recurring questions were related to master data of the farms and commercial questions. The big number of individual row items as mentioned above was a result of the fact that the data was structured per product. This means each product that was bought by a farm in a particular year that was included in the questionnaire was shown in the raw data as an individual row item. This was useful to the research as parameters like share of wallet needed to be calculated for the sample company. Very important in all research is the so-called unit of analysis, meaning what it is the researcher wants to say something about (Marschan-Piekkari & Welch 2011). It depends on the research question, research proposition and research settings (ibid.). The units of measurement derived from the research questions and the research settings as explained above were sales, repeated sales, profitability, profit contribution, customer loyalty and customer insight. They were justified to be used for answering the research questions and hypotheses by the literature analysed for the

research and described in more detail in section 5.2.1 “Development of research methods”.

From the questionnaires that were prepared by the third-party service provider a certain set of data was obtained based on their interviews. The raw data in a next step needed to be classified and structured in a way that it was usable to find answers to the hypotheses. How this was done will be explained in the next sections. The single parameters stated in the raw material table are as shown in the following Table:

*Table 6: Explanations of parameters in raw data*

<b>Variable</b>	<b>Description</b>
Number of questionnaire or fake number	A generic customer number
Year	The year the questionnaire was performed. In this case either 2012 or 2013
Crop	The crop the questionnaire was prepared for
Country	Country the customer responding is based in – in this case Germany only
Sales region	The sales region the customer belongs to
Crop size	A range related to the size of the farm in hectares the customer belongs to
Product	The name of the product bought by the farmer
Product type	The type of product bought by the farmer, e.g. herbicide, insecticide or fertiliser
Product type segmentation	A further classification related to the product type
License holder	Name of the firm the product belongs to. Owner of the genetics or recipes
Variety	Variety the product belongs to
Breeder	Company breeding the products
Distributor	Company distributing the products
seed_rate	Rate of seeds needed per hectare

Variable	Description
variety_area_treated	Hectares treated with particular product. Includes the number of hectares the farmer represents within the total population
SDV1000ha	An artificial calculation of area treated. It also incorporates number of times a certain area has been treated with a particular product. It also includes the total value of hectares that the farmer represents
TurnoverMioEUR	Artificial revenue with the customer based on a particular price list. Adjusted according to the proportion of the total market that a customer represents
cost_per_ha_eur	Amount of money spent on a particular product
variety_area_treated_unweighted	The actual number of hectares treated with a particular product by a farmer
SDV1000ha_unweighted	Same as SDV1000ha but actual per product
TurnoverMioEUR_unweighted	Artificial revenue with the customer based on a particular price list
BO1	Answer to question 1: <i>“Do you participate in a customer reward programme for crop protection products or seeds?”</i>
BO1a_Bayer_CropScience, BO1a_Syngenta, BO1a_BASF, BO1a_Pioneer, BO1a_DuPont_de_Nemours, BO1a_Dow_AgroSciences, BO1a_KWS, BO1a_Agromais	Answer to question 1a: <i>“If so, which one?”</i>
BO2	Answer to question 2: <i>“Did you participate in a customer reward programme for crop protection products or seeds in 2012?”</i>



Variable	Description
BO2a_Bayer_CropScience, BO2a_Syngentam, BO2a_BASF, BO2a_Pioneer, BO2a_DuPont_de_Nemours , BO2a_Dow_AgroSciences, BO2a_KWS, BO2a_Agromais	Answer to question 2a: <i>“If so, which one (2012)?”</i>
BO3	Answer to question 3: <i>“How likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague?”</i>

Additional parameters had to be calculated and assigned to either the customer or to each product mentioned based on the raw data. These parameters were customer value (variety\_area\_treated\_unweighted multiplied by cost\_per\_ha\_eur), customer segment (Partner, Dialog, Info), evaluation whether or not the product was a product that the sample company was license holder, cost of the product 2012, cost of the product 2013, member of the reward programme of the sample company in 2013 and member of the reward programme of the sample company 2012.

## 6.2 Results analysis

Results for all quantitative hypotheses had been developed based on the raw data and the modifications to the raw data described above. This was an intermediate step prior to the significance test that subsequently was necessary to understand whether or not the results of these analyses were statistically significant. These results will be described in more detail as follows.

SPSS packages are widely accepted especially as they are easy to use, are able to cope with huge amounts of data and operate with a vast number of statistical and mathematical functions (Punch 2014). For this research however the decision was made intentionally not to use SPSS for a particular reason. Even though SPSS might have been very helpful in terms of efficiency and data management capability the

formulas used might not have been visible to the researcher and therefore the calculations done might not have been transparent. This means the researcher might not necessarily have understood what the package did exactly and which formulas were used. Therefore right from the beginning it was planned to use formulas for testing and to calculate the results manually in Microsoft Excel. The time that could potentially have been saved by using SPSS might have had to be spent later on trying to understand the formula used by SPSS, if the formula could have been uncovered from the package at all. Another advantage of doing the calculations in Microsoft Excel directly came from the fact that the raw data was delivered in an Excel spreadsheet. Therefore additional columns were included for the calculations and no transfer of data to another application or software was necessary. Using SPSS would have required the data to be transferred to other software (namely SPSS) with a potential risk of making mistakes and unintentional changes to the data during the transfer. This risk was completely eliminated by leaving the data in the Excel format and doing the calculations with this software. Even though the calculations were done manually in Microsoft Excel still some “technical support” was used where Microsoft Excel provided a formula for parameters used in the research (e.g. the variance). This formula was used after the manual calculation by the researcher to reconcile the manual calculation and to provide security that the results were correct.

### 6.2.1 Hypothesis one

The **first hypothesis** was formulated in section 4 “Research question, aim, objectives and hypotheses” as

H<sub>1</sub>: There is an increase in customer loyalty as a result of participation in a customer reward programme

In section 5.2.1 “Development of research methods” it was explained that many scientific sources confirm the relationship between customer loyalty and the willingness to recommend a company or product where customer loyalty positively correlates with an increase in recommendation rates (Reichheld 2003, Reichheld & Seidensticker 2006, Keiningham T. et al. 2008). Derived from this finding it was assumed that every method or action that increases recommendation rates or

somehow has an effect on them or is at least associated to them also has an effect on customer loyalty. This in turn means if the customer reward programme was associated to the willingness of customers to recommend the company or its products it also has an effect on customer loyalty. For this reason the results to the question *“how likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague?”* were analysed to be able to confirm or reject the first set of research hypotheses. To do so the answers given by the respondents and recorded in the raw material table in Excel had to be structured appropriately. All answers that did not fit the range from one (very unlikely) to ten (very likely) that was given in the questionnaire needed to be removed. Such answers are for example “don’t know” or no answer at all.

Table 7 shows the distribution of the answers.

Table 7: Results of analysis for Hypothesis 1 and distribution of results

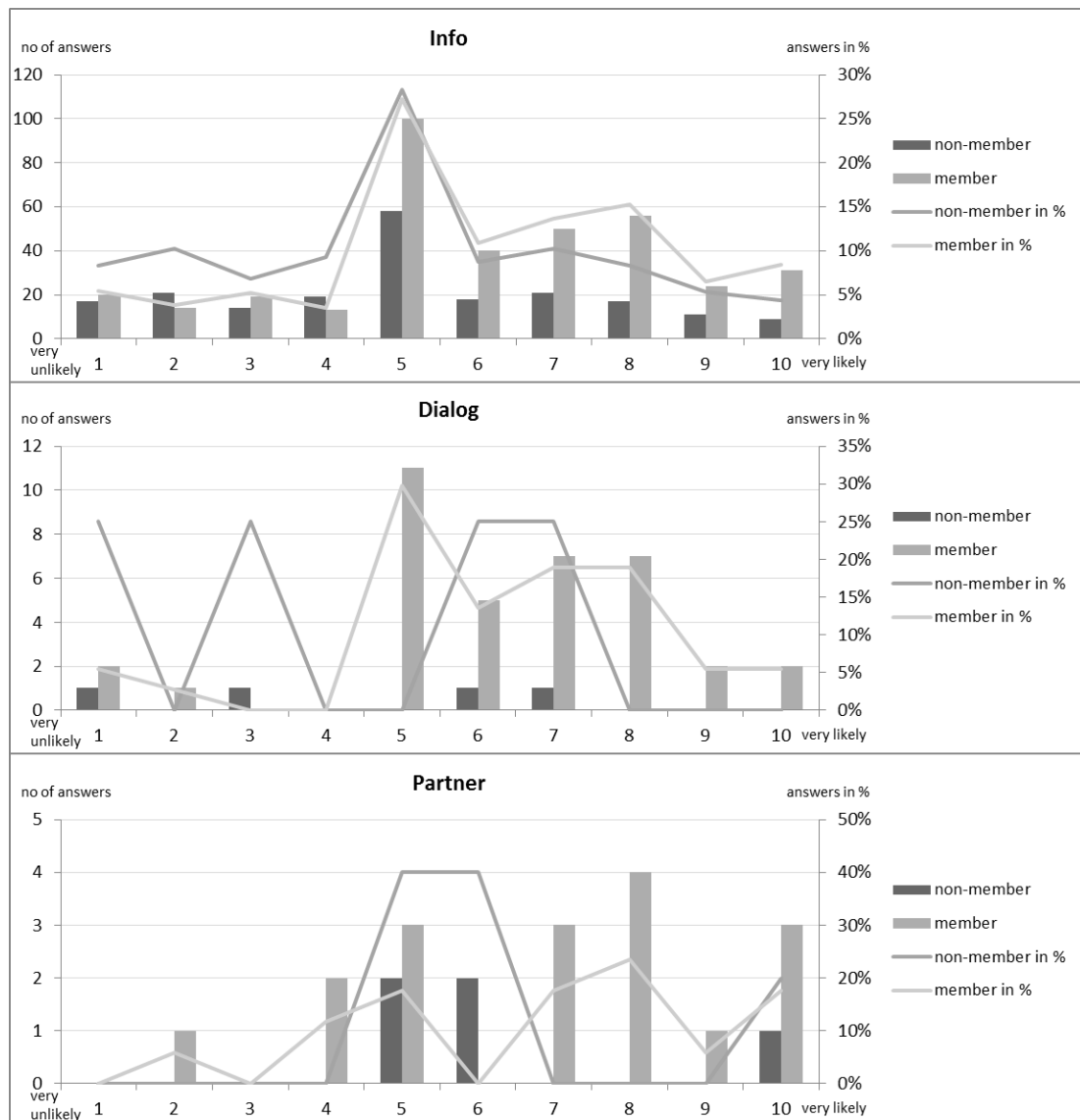
<u>Results of analysis for Hypothesis 1 and distribution of results</u>																
Number of answers																
Customer Segment	Programme Member	1	2	3	4	5	6	7	8	9	10	996	Don't know	No	No reply empty	Total
Dialog	0	2	2	2	1	3	2		2			1	2		7	24
	No	1		1			1	1						1	9	14
	(no in %)	25	0	25	0	0	25	25	0	0	0					
	Yes	2	1			11	5	7	7	2	2				5	42
	(yes in %)	5	3	0	0	30	14	19	19	5	5					
Dialog Total		5	3	3	1	14	8	8	9	2	2	1	2	1	21	80
Info	0	70	85	104	68	265	71	75	55	19	19	11	117	20	287	1266
	No	17	21	14	19	58	18	21	17	11	9	1	12	5	61	284
	(no in %)	8	10	7	9	28	9	10	8	5	4					
	Yes	20	14	19	13	100	40	50	56	24	31		13	2	78	460
	(yes in %)	5	4	5	4	27	11	14	15	7	8					
Info Total		107	120	137	100	423	129	146	128	54	59	12	142	27	426	2010
Partner	0			1				1	1		2				3	8
	no					2	2				1		1		3	9
	(no in %)	0	0	0	0	40	40	0	0	0	20					
	yes		1		2	3		3	4	1	3				3	20
	(yes in %)	0	6	0	12	18	0	18	24	6	18					
Partner Total			1	1	2	5	2	4	5	1	6		1		9	37
Total		112	124	141	103	442	139	158	142	57	67	13	145	28	456	2127

The answers were sorted in the Table by customer segment and according to the answer the customer gave regarding the membership of the reward programme. The figures shown in the Table are the frequencies of answers within the range from one to ten. The answers that were not relevant or not usable are marked in black. The figures marked in dark and light grey colours are percentages that show the proportion of a particular category (answers from one to ten). These percentages were necessary to calculate the net promoter score.

As mentioned above for the calculations only the answers that provided usable information were taken into account. These were all answers from programme and non-programme members from one to ten. To obtain an overview these answers were

put into a graphical format including the calculated percentage ranges per category (from one to ten) as well (see Figure 10 below).

*Figure 10: Distribution of answers related to likelihood of recommendation by customer*



From the Figure above it can be seen clearly that the light grey bars related to answers which were given by programme members are more distributed in the right area of the graph (higher likelihood of recommendation) than the dark grey bars which relate to the answers of non-members of the reward programme. It can also be seen that the most meaningful results were obtained for the customer segment Info, since here the number of respondents was big enough. It could be questioned

whether or not it makes sense to analyse the data for the customer segments Dialog and Partner due to the small number of respondents.

From the raw data as shown above the net promoter score was calculated. This was done according to the description in section 5.3.2 “Hypotheses testing” and as proposed by Keiningham et al. (2007) and Reichheld & Markey (2011) by calculating the difference between so-called promoters (proportion of respondents answering with 9 or 10 on question 3 “*how likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague?*” and the detractors (proportion of respondents answering this question with 1 to 6). An overview of how this was done is given in Figure 11 below.

Figure 11: Calculation of net promoter score

Calculation of net promoter score												
Distribution of answers on question related to recommendation in per cent												NPS
Customer Segment	Member	1	2	3	4	5	6	7	8	9	10	
Dialog	no	25%	0%	25%	0%	0%	25%	25%	0%	0%	0%	-75%
	yes	5%	3%	0%	0%	30%	14%	19%	19%	5%	5%	-41%
Info	no	8%	10%	7%	9%	28%	9%	10%	8%	5%	4%	-62%
	yes	5%	4%	5%	4%	27%	11%	14%	15%	7%	8%	-41%
Partner	no	0%	0%	0%	0%	40%	40%	0%	0%	0%	20%	-60%
	yes	0%	6%	0%	12%	18%	0%	18%	24%	6%	18%	-12%
		Detractors (Detr)								Promoters (Prom)		Prom - Detr

Based on the data and the calculations done as shown in the Table above the following net promoter scores were calculated for the three different customer segments:

Partner	non-members	-60%
	members	-12%
Dialog	non-members	-75%
	members	-41%
Info	non-members	-62%
	members	-41%

As mentioned earlier in this text the higher the net promoter score the better. In all examples analysed the net promoter score was negative due to the fact that the proportion of detractors was higher than the number of promoters. Still it can be seen easily that through all customer segments the net promoter score was higher for members of the customer reward programme than non-programme members. Whether or not the numbers are statistically significant will be discussed hereinafter.

The **first set of hypotheses** delivered a proportion (net promoter score) for members and non-members of the reward programme for the three different customer segments. Since there was only a small sample for the two customer segments “Dialog” (only three non-members) and “Partner” (only five non-members) regarding the analysis prepared for the first hypotheses, these segments could not be considered in the significance testing to the same extent as the customer group Info, where the number of respondents or the number of samples was likely to deliver a much more meaningful result. Therefore it seemed appropriate only to take the customer segment “Info” into full consideration since the sample size was sufficient (205 non-members and 367 members). This will be discussed in more detail after the presentation of the results of the calculations for significance testing below.

The formula that needed to be applied for testing the hypotheses looks as follows:

$$z_{calc} = \frac{(p_1 - p_2) - (\pi_1 - \pi_2)}{\sqrt{p(1-p)(\frac{1}{n_1} + \frac{1}{n_2})}} \quad \text{where} \quad p = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2}$$

This formula is used if a researcher wants to compare two population proportions that share the same characteristics (Black 2012) or if the difference in two population proportions is tested (ibid.). It is applied in cases with a large sample size (Anderson et al. 2012). Given the fact that the sample size ( $n_1$  and  $n_2$  – number of respondents to

the question “*How likely is it that you would recommend the sample company or its products to a friend or colleague?*”, where  $n_1$  represents the group of non-members to the customer reward programme and  $n_2$  represents the group of members to the programme) was more than 200 and the fact that two population proportions ( $p_1$  – proportion of non-programme members;  $p_2$  – proportion of programme members) needed to be compared the usage of this formula was justified.

For testing purposes the calculation based on the formula above for the net promoter score (remember that the net promoter score is calculated by subtraction of the proportion of detractors from the proportion of supporters) needed to be broken down into its components. This was necessary since the combined score calculated from “detractors” and “promoters” could not be tested by using the formula above. This becomes immediately obvious to the reader since  $p_1$  and  $p_2$  as a concept of proportions can never be negative when using the formula above. Therefore the results for  $z_{calc}$  for both customer groups within the customer segment “Info” are shown in two different calculations. During analysis they were tested separately. This in turn means that the direction for the detractors needed to be considered, meaning that the proportion of detractors needed to be significantly lower for members than non-members. The proportion of supporters however needed to be significantly higher for members than non-members. Only if this was the case could the  $H_1$  hypothesis be confirmed and the  $H_0$  hypotheses be rejected. Since it was expressed in terms of lower and higher this was a one-tailed test where both tails needed to be considered dependent on which part of the population was considered – detractors or promoters.

The significance testing for the proportion of detractors that belonged to the customer segment Info looked as follows:

$$p_1 = 0.561 \quad p_2 = 0.717 \quad n_1 = 367 \quad n_2 = 205$$

resulting in  $p = 0.617$

$$z_{calc} = ((0.561 - 0.717) - 0) / (\text{square root } (0.617 * (1 - 0.617) * (1 / 367 + 1 / 205)))$$



$$z_{\text{calc}} = \underline{\underline{-3.675}}$$

Conclusion: The value of  $z_{\text{calc}}$  lay in the left tail of the distribution. The question to be answered was whether or not the proportion for members of the programme was significantly lower. Therefore it is unlikely to have come from the distribution under the null hypothesis.  $H_0$  was rejected at the 1 per cent level of significance.

For the proportion of promoters the question that needed to be answered was expressed in positive terms as whether or not the proportion of members in the reward programme that belong to the group of promoters was significantly higher than the proportion of promoters in the customer group non-members. The calculation for promoters within customer segment Info therefore looks as follows:

$$p_1 = 0.150 \quad p_2 = 0.098 \quad n_1 = 367 \quad n_2 = 205$$

resulting in  $p = 0.131$

$$z_{\text{calc}} = ((0.150 - 0.098) - 0) / (\text{square root } (0.131 * (1 - 0.131) * (1 / 367 + 1 / 205)))$$

$$z_{\text{calc}} = \underline{\underline{1.777}}$$

Conclusion: The value of  $z_{\text{calc}}$  lay in the right tail of the distribution. Therefore it was unlikely to have come from the distribution under the null hypothesis.  $H_0$  was rejected at the 5 per cent level of significance.

The same calculations were done for all customer segments, delivering the following results:

Table 8: Distribution under the null hypothesis for the first set of hypotheses

$z_{calc}$	detractors				promoters		
$z_{level\ of\ significance}$	<-2.33	<-1.65				>1.65	>2.33
level of significance	1%	5%				5%	1%
Partner		-1.765			0.166		
Dialog			-0.901		0.692		
Info	-3.675					1.777	

As mentioned above the most meaningful results could be expected for the customer segment “Info” due to the fact that the number of samples was much higher compared to the customer segments “Dialog” and “Partner”. As described in section 2.1.3.1 “Definition of target markets and market segmentation” and as shown in Figure 3 in the same section a customer reward programme is most appropriate to target smaller customers that are not big enough to be treated individually by using the sales force. Therefore it was important to have a big number of samples for this (small) customer segment which was represented by the customer segment “Info”. The  $z_{calc}$  numbers for customer segment “Partner” needed to be disregarded due to the fact that the number of samples was below 30 and therefore the z-distribution seemed inappropriate. The numbers for  $z_{calc}$  related to the customer segment “Dialog” also represented a small number of samples (overall 41) and therefore did not deliver results that were as reliable as the ones for customer segment “Info”. For customer segment “Dialog” however the value for  $z_{calc}$  lay in the centre of the distribution. For this particular customer segment the decision would be to reject the alternative hypothesis  $H_1$ . For the reasons that are described above (1. customer segment “Info” is the most appropriate to look at based on the set-up of the research and 2. customer segment “Dialog” is underrepresented in the sample) it seemed sufficient to rely on the results for customer segment “Info” regarding the overall judgment of this set of hypotheses. Therefore the overall conclusion for the first set of hypotheses was to reject the  $H_0$  hypotheses at least at the five per cent level of significance. The assumption of a five per cent level of significance seemed to be the safe option even though the  $H_1$  hypotheses was confirmed at the one per cent level of

significance for testing  $z_{calc}$  for the group of detractors in customer segment “Info”. Without anticipating too much prior to the conclusions section it can be realised that according to the test results the association between the membership in the reward programme and the willingness to recommend the company or its products was most evident in the customer segment “Info”, which contains the type and size of customers that are intended to be targeted by such a programme.

An additional calculation was done comparing the net promoter score of customer reward programme members that only joined the programme in 2013 with members that had been in the programme in 2012 and 2013. The net promoter score in both populations was not significantly different in both groups. There was however not enough data available to run this analysis for all customer segments. Therefore it was only done for the group of small customers and customer segment Info. Since the data used for this analysis stem from two different populations the finding could potentially be an outlier. The finding however suggests repeating this analysis and comparing the development of the net promoter score of the same population over time. This subject will be further discussed in section 7.2 “Suggestions for further research”.

### **6.2.2 Hypothesis two**

The **second hypothesis** was stated as:

H<sub>1</sub>: There is an increase in revenue as a result of customers participation in a customer reward programme compared to the status quo without a reward programme

The raw data had to be sorted using the categories according to the membership in the reward programme 2012 and 2013. The related turnover in 2012 and 2013 was assigned to the customers in these categories. This was done in a pivot table.

Relevant parameters like average turnover per customer, average development of turnover per category and proportion of customers that show increased revenue are summarised in Table 9.

*Table 9: Results of analysis for Hypothesis 2 and distribution of results*

<b><u>Results of analysis for Hypothesis 2 and distribution of results</u></b>							
Customer segment	Reward programme membership	No. customer turnover increased and (%)	No. customer turnover not increased and (%)	No. of answers total	Proportion of customers with increased turnover	Average turnover per customer	Average change of turnover in %
Partner	Member 2013	-	-	-	-	-	-
	Member 12&13	14 (82%)	3 (18%)	17	82.35%	21721	+44.34%
	Non-member	5 (63%)	3 (37%)	8	62.50%	13158	+49.89%
Dialog	Member 2013	-	-	-	-	-	-
	Member 12&13	18 (53%)	16 (47%)	34	52.94%	10580	+10.21%
	Non-member	4 (50%)	4 (50%)	8	50.00%	4948	+18-54%
Info	Member 2013	8 (44%)	10 (56%)	18	44.44%	1416	+2.96%
	Member 12&13	153 (58%)	110 (42%)	263	58.17%	2238	+15.36%
	Non-member	76 (55%)	62 (45%)	138	55.07%	1013	-3.77%
All	Member 2013	8 (44%)	10 (56%)	18	44.44%		
	Member 12&13	185 (59%)	129 (41%)	314	58.92%		
	Non-member	85 (55%)	69 (45%)	154	55.19%		

To make the results more transparent and to be able to recognise a trend, data for three different types of memberships (member 2013 – customers that joined the programme in 2013, member 12&13 – customers that participated in the programme in 2012 and in 2013, non-member – customers that did not take part in the programme either in 2012 or in 2013) was extracted.

For the **second set of hypotheses** the development of revenues was analysed. As shown in Table 9 above it was seen that interestingly the group of customers that participated in the reward programme in 2012 and 2013 delivered the biggest

increase in revenue of +15.36 per cent compared to non-members, who showed an average decrease in revenue of -3.77 per cent.

According to how the hypotheses were set it needed to be tested however if there was an association between the membership in the programme and an increased revenue from one year to the other. The group of customers that joined the programme in 2013 and did not participate in 2012 was not considered in this analysis since it turned out that the population that belonged to this group was very small (only 18 customers in all, and all of them belonged to the customer segment “Info”).

The statistics used was a chi-squared statistic based on the following formula:

$$\chi^2 = \sum \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}} \text{ with } (r - 1)(c - 1) \text{ degrees of freedom}$$

Where:

$$\text{Expected value} = \frac{\text{Row total} \times \text{Column total}}{\text{Overall total}}$$

This formula is used to test whether or not there is statistically significant evidence of dependence or a statistical confidence that there is a relationship between two variables (David & Sutton 2004). The so-called chi-squared test for independence is applied to analyse the relationship of two variables within a population using the frequency data from a sample (Gravetter & Wallnau 2014).

The source table for the test looked as follows:

Revenue increased from 2012 to 2013	Programme membership	Revenue increased	
		Yes	No
	Member 12 & 13	185	129
	Non-member	85	69

The next step was the calculation of row and column totals.

Revenue increased from 2012 to 2013	Programme membership	Revenue increased		
		Yes	No	Total
	Member 12 & 13	185	129	314
	Non-member	85	69	154
	Total	270	198	468

Therefore the expected values looked as follows:

Revenue increased from 2012 to 2013	Programme membership	Revenue increased		
		Yes	No	Total
	Member 12 & 13	181.15	132.85	314
	Non-member	88.85	65.15	154
	Total	270	198	468

Since the table consisted of two columns and two rows only the formula for the chi-squared values needed to be adjusted by using a Yates correction:

$$\chi^2 = \sum \frac{(|\text{Observed} - \text{Expected}| - 0.5)^2}{\text{Expected}}$$

The Yates correction should be applied if the table used only includes two categories or as stated in literature if a two by two contingency table is applied (Arañkacāmi & Rangaswamy 2006). It is also used if one of the cells in the expected count (see above) delivers a value smaller than five (Stamatis 2012). The latter however is not the case in the sample introduced in this text.

This formula delivered the following chi-squared values with one degree of freedom:

Revenue increased from 2012 to 2013	Programme membership	Revenue increased		
		Yes	No	Total
	Member 12 & 13	0.06	0.14	0.20
	Non-member	0.21	0.17	0.38
	Total	0.27	0.31	0.59

Therefore  $\chi^2 = 0.59$

This value lay in the 50 per cent tail or in the centre of the distribution represented by the null hypothesis. Therefore the decision was to reject the  $H_1$  hypothesis and confirm the  $H_0$  hypothesis. This in turn meant that in the sample analysed the customers that participated in the customer loyalty programme did not show increased revenue compared to the status quo without a loyalty programme based on the research method that was derived from literature and applied for this research.

The interesting fact however was the mentioned average turnover development from one year to another that was substantially higher for members of the reward programme compared to non-members. This led to the conclusion that even though there was no significant association between membership in the programme and the number of customers that show increased revenue, the customers that showed an increase in revenue showed a much higher rate of revenue increase than the more or less same proportion of non-members that also showed an increase in revenue. It also became visible that the average revenue was apparently higher if a customer joined the programme in 2013 or if a customer was already a member of the programme in 2012. Looking at the pure average turnover figures it seemed that the longer a customer was a member of the programme the higher the average turnover was.

After the discovery of this relationship it was decided to do another test since this might potentially have an impact on the answer to the second set of hypotheses. To find out whether or not this association was significant another test was done as described below exemplarily for the customer segment “Info”.

The first test was done for the average revenue related to members of the customer reward programme that joined the programme only in 2013. It was tested whether or not it was significantly higher than the one for non-members of the programme in the reporting year 2013.

$$\begin{array}{lll} n_1 = 31 & \bar{x}_1 = 1,416 & s_1^2 = 5,090,917 \\ n_2 = 261 & \bar{x}_2 = 1,013 & s_2^2 = 4,459,963 \end{array}$$

The test statistics was given by: 
$$z = \frac{\bar{x}_1 - \bar{x}_2 - (\mu_1 - \mu_2)}{s \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where:  $s^2 = \text{pooled variance} = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$

With  $H_0: \mu_1 \leq \mu_2$

$H_1: \mu_1 > \mu_2$

The formula applied in this context is used if it needs to be tested whether or not two sample means indicate a difference in the population means of the total population (Mendenhall et al. 2009). It is applied for a random sample (Anderson et al. 2012). The sample size n should be at least 30 (Anderson et al. 2011). As described above the raw data available for this research was taken as a random sample. The sample size was above 30 and therefore the formula could be applied for this test.

Based on this formula  $z_{\text{calc}}$  was calculated for the comparison of the average revenue from customers that joined the reward programme in 2013 vs. average revenue of customers that had been members neither in 2012 nor in 2013 as follows:

$$s^2 = \text{pooled variance} = ((31 - 1) * 5,090,917 + (261 - 1) * 4,459,963) / (31 + 261 - 2)$$

$$s^2 = \text{pooled variance} = 5,090,917$$

$$s = 2,256$$



$$z_{\text{calc}} = (1,416 - 1,013 - 0) / (2,256 * \text{square root } (1 / 31 + 1 / 261))$$

$$z_{\text{calc}} = \mathbf{0.94}$$

This was a one-tailed test and the calculated value for  $z_{\text{calc}}$  was in the centre of the distribution. Therefore it was highly likely to come from the distribution under the null hypothesis. Consequently the decision was to reject the  $H_1$  hypothesis.

The same calculation for the comparison of the means for revenues of the group of customers that were members in both 2012 and 2013 and the group of customers that had not been members in any of these years. That calculation looked as follows:

$$\begin{array}{lll} n_1 = 404 & \bar{x}_1 = 2,238 & s_1^2 = 11,707,531 \\ n_2 = 261 & \bar{x}_2 = 1,013 & s_2^2 = 4,459,963 \end{array}$$

$$s^2 = ((404 - 1) * 11,707,531 + (261 - 1) * 4,459,963) / (404 + 261 - 2)$$

$$s^2 = 8,865,347$$

$$s = 2,977$$

$$z_{\text{calc}} = (2,238 - 1,013 - 0) / (2,977 * \text{square root } (1 / 404 + 1 / 261))$$

$$z_{\text{calc}} = \mathbf{5.18}$$

The value for  $z_{\text{calc}}$  was in the right tail of the distribution. Therefore the null hypothesis was rejected at the one per cent level of significance. This means the average revenue of the group of members that participated in the customer reward programme in 2012 and 2013 was significantly higher than the average revenue in the group of non-members.

Table 10 gives an overview of the significance testing for all customer segment and customer reward membership combinations where relevant raw data was available.

Table 10: Overview variables for and calculation of  $z_{\text{calc}}$  for second set of hypotheses

<b>Overview variables for and calculation of <math>z_{\text{calc}}</math> for second set of hypotheses</b>							
Segment	Member	$s^2$	$\bar{x}$	n	$s^2 = \text{pooled variance}$	s	$z_{\text{calc}}$
Partner	12 and 13	307654029	21721	19	298176896	17268	1.23
	None	276853347	13158	9			
Dialog	12 and 13	84212012	10580	40	73769918	8589	2.11
	None	42443637	4948	14			
Info	2013 only	10559185	1416	31	5090917	2256	0.94
	12 and 13	11707531	2238	404	8865348	2977	5.18
	None	4459963	1013	261			

The values for  $z_{\text{calc}}$  for the customer segment “Partner” were disregarded due to the fact that the number of samples “n” was too small. Theoretically a t-distribution could have been done but on top of that the customer reward programme targets the smaller customers more than the bigger ones due to the fact that the big ones are treated individually. For the group of customers that joined the programme in 2013 and that belonged to the customer segment “Dialog” no raw data was available. Therefore this group was also not included in the testing. Subsequently the results for the combinations Dialog / member in 2012 and 2013, Info / joiner in 2013 and Info / member 2012 and 2013 were considered. For these combinations of customer segment / membership the following conclusions were drawn:

<u>Segment / member</u>	<u>Conclusion</u>
- Dialog / member in 2012 and 2013	- $z_{\text{calc}}$ was in the right tail of the distribution – reject the $H_0$ hypothesis at the five per cent level of significance
- Info / joiner in 2013	- $z_{\text{calc}}$ was in the centre of the distribution – reject the $H_1$ hypothesis
- Info / member 2012 and	- $z_{\text{calc}}$ was in the right tail of the distribution – reject

2013

the  $H_0$  hypothesis at the one per cent level of significance

From the conclusions above it can be seen that the association was not very strong for the combination Info / joiner in 2013. It was however strong for the group of customers that had been member in the customer reward programme in both 2012 and 2013. Therefore it could be assumed that the association is stronger the longer a customer has been in the programme. That is at least what could be derived from the testing as shown above.

Based on the findings for the second set of hypotheses and the association especially in the customer segment “Info”, the  $H_1$  hypothesis could be confirmed overall. It needs to be kept in mind however that the results of the testing, especially in combination with the first hypotheses testing, for the second set of hypotheses are to a certain extent contradictory.

### 6.2.3 Hypothesis three

To find answers to the **third hypothesis** it was necessary to analyse the share of wallet and based on that to make assumptions as the basis for further calculations. The third set of hypotheses was set as:

$H_1$ : There is an increase in profit contribution as a result of participation in a customer reward programme

For the analysis of share of wallet all customers needed to be categorised into programme members and non-members. Data for all other customers (customers that did not answer the questions “*did you participate in a customer reward programme for crop protection products or seeds in 2012?*” with “yes” or “no”) were not considered in this analysis.

Figure 12 shows exemplarily how the results regarding share of wallet of customers of the sample company were calculated using Microsoft Excel. The full calculation and a better readable overview of the Excel table prepared to analyse the third set of

hypotheses can be found in Appendix 2. The customer values translated into proportions related to customer category and membership category can also be found in the same Appendix.

*Figure 12: Example - Results of analysis for Hypothesis 3 and distribution of results*

Summe von Kundenwert in EUR	Kundenwert - K: Teiln 2013						
	Dialog			Dialog Ergebnis	Info		
license_holder	0 no	yes			0 no	yes	Info Ergebnis
BASF	143.669,28	141.942,80	168.919,03	454.531,11	692.034,22	310.074,65	449.007,75
Bayer CropScience	93.413,37	67.735,63	244.767,97	405.916,97	490.339,01	302.701,86	567.609,10
Belchim			7.984,90	7.984,90	16.078,51		8.330,00
Biochemicals					110,67	219,56	57,12
BIOFA		4.851,63		4.851,63			249,90
Cheminova Agro	22.383,19	12.021,98	16.322,35	50.727,51	178.986,98	28.615,39	71.718,29
Dow AgroSciences			16.038,23	16.038,23	6.632,15	1.102,68	1.134,32
DuPont de Nemours	55.970,47	22.313,00	166.165,98	244.449,45	169.641,57	114.463,65	306.596,39
Feinchemie Schwebda					449,82		
Innograd						660,45	
ISK Biosciences Limited	17.468,95	16.128,07	21.103,82	54.700,84	94.957,18	42.586,46	73.497,28
Kali+Salz					2.476,69		
Lebosol					3.737,30		74,97
Loveland Industries Ltd.					83,00		
Makhteshim-Agan	8.035,15	3.326,79	22.578,26	33.940,21	49.041,67	26.863,13	81.392,86
Monsanto					3.103,45	3.584,76	3.358,84
Nufam	5.680,53	1.675,52	11.937,41	19.293,46	44.872,77	12.594,33	25.222,69
Plantan Düngemittel GmbH					425,07	319,98	
Sipcam					4.591,59	532,07	12.757,14
Spieess-Urania Chemicals GmbH							1.330,78
Syngenta	255.673,87	69.271,30	447.431,81	772.376,97	1.142.650,78	298.828,13	1.000.490,65
United Phosphorus Limited					843,41	468,56	
unknown	1.912,66	16.973,57	0,00	18.886,23	55.526,89	14.786,23	41.170,04
Gesamtergebnis	604.207,48	356.240,28	1.123.249,76	2.083.697,51	2.956.582,73	1.158.401,90	2.643.998,10
	42,3%	19,4%	39,8%	37,1%	38,6%	25,8%	37,8%

To analyse the raw data for the third set of hypotheses a pivot table in Microsoft Excel was used and the data provided for turnover or as it is used here the customer value for all product and customer combinations was summed up per “license holder” (this is the company the product purchased belongs to). The data was also split into the categories customer reward programme member of the sample company (or other companies that had been analysed), non-members of that particular customer reward programme and the group of customers that had not provided information on whether or not they joined that particular customer reward programme. This analysis was done for all three different customers segments – Partner, Dialog and Info. The consolidated customer value for members of a particular customer reward programme and non-members were then put into relation to the total customer value within the group of customer reward programme members and non-members per customer segment. This calculation delivered the share of wallet for each of the companies analysed.

The share of wallet for each customer segment related to the sample company out of this analysis was calculated as follows:

Partner	non-members	31.2%
	members	48.1%
Dialog	non-members	19.4%
	members	39.8%
Info	non-members	25.8%
	members	37.8%

In the table in the exemplary Figure 12 above and in Appendix 2 these are the figures marked in light and dark grey.

To triangulate and to verify the numbers for this set of hypotheses a second analysis was done. Data was extracted from internal databases that include the turnover made with customers that are enrolled in the reward programme and analysed. It needs to be recalled that all members of the programme through a code deliver information regarding turnover made with a particular product to the sample company. Therefore the data regarding turnover made with reward programme members was available. This data was compared with the overall turnover with wholesalers of the sample company. The data in Table 11 shows the results of this analysis.

Table 11: Verification of analysis for Hypothesis 3

<b><u>Verification of analysis for Hypothesis 3</u></b>				
Reward programme membership	Turnover mill.€	Area in 1,000 ha	Cost/ha	Share of wallet
Member	11.9	351	34.00 €	46.1%
Non-member	55.8	2,140	26.10 €	35.4%
Sum sample company	67.8	2,491	27.20 €	36.9%
Sum country	183.8	2,491	73.80 €	100.0%

Source: Author + sample company

The share of wallet in the Table above was calculated by identifying the cost per hectare. This was done by dividing the turnover by the area cultivated.

$$\text{"Turnover mill.€"} / \text{"area in 1,000 ha"} = \text{"cost/ha"}$$

The cost per hectare for the entire country shows the total amount spent per hectare. The share of wallet was then calculated by determining the proportion of the cost per hectare compared to the total cost per hectare spent on average for the entire country. The number for the area cultivated ("area in 1,000 ha" in the Table above) for the entire country was taken from the Federal Statistical Office. For members only the number for this parameter ("area in 1,000 ha") was taken from the master data delivered by members who participate in the customer reward programme. This master data was entered by the programme members as a prerequisite to becoming a member. This information is therefore also available in databases within the sample company. The total turnover for products sold on "sum country" level was taken from the Excel table of the questionnaire that includes the raw data. Here the parameter "TurnoverMioEUR" that was described in section 6.1 "Structure and content of data available for research and modifications" above was used for determining the parameter "turnover mill. €" for "sum country". For the members of the programme this parameter ("turnover mill. €") was taken from the internal

databases where all transactions with members of the reward programme were recorded. It was assumed that all area that was cultivated but not with products of the sample company belongs to the group of non-members. The same applies to the turnover. It was assumed that all turnover that did not belong to the group of members of the programme belonged to the group of non-members. Therefore the figures for the group non-members were calculated values and not directly included in these sources or databases used.

Considering the accuracy of the validation study, meaning to what extent the numbers reflect the ultimate truth, it must be accepted that this study only delivered an approximate solution. The reasons for this are diverse:

- The numbers for area cultivated from the Federal Statistics Office were based on estimates of this organisation and therefore face the risk of inaccuracy especially compared to more objective means of data generation (Statistisches Bundesamt 2013)
- The numbers related to area cultivated by members of the reward programme might have been different from the actual situation due to the fact that the sizes of area cultivated were delivered by the reward programme members and were not verified
- The number for the turnover with programme reward members might have been incorrect due to the fact that potentially not all codes that qualify for a reward had been submitted to the sample company or potentially had been handed in for a different time period and might have been reported in a wrong period
- All figures for non-members were only calculated values and were not confirmed by input of this group

Since the data sources were different and since the population considered in both analyses were different as well as due to the potential inaccuracy as described above it was systematically impossible to obtain the same results as in the main study. The calculation done as described for validation purposes only was intended to test whether or not the results of the main study made sense at all. Since both results – main study and validation study – show the same direction of results it could be

assumed that the results of the main study were indeed valid and therefore were not only able to explain the entire population but might also explain a general rule and an association between the parameters. The significance testing for this association however will be done in the next section. With this validation study it was possible to judge if the main study potentially reports on an exceptional case.

Based on the outcome of the validation study the conclusion could be summed up as follows. Even though the numbers were different due to different data sources and means of calculation they showed the same direction and had the same meaning as the results of the analysis based on the questionnaires. Therefore the results were verified by the numbers shown in Table 11 above.

Another analysis that was run was the comparison of shares of wallet of competitor programmes. The results are shown in Table 12 below.

*Table 12: Shares of wallet for competitor programmes*

<u>Sample</u>	<u>Share of wallet</u>		<u>Result</u>
	<u>Non-member</u>	<u>Member</u>	
Competitor 1	18.3%	21.1%	SOW member slightly higher
Competitor 2	12.2%	24.9%	SOW member double
Competitor 3	8.5%	24.2%	SOW member more than double
Competitor 4	0.4%	1.8%	database too small
Sample company	25.69%	40.35%	SOW member clearly higher

The interesting fact here was that the share of wallet in all instances was higher in all programmes analysed for members of a particular programme compared to non-members of the respective programme.

Even though this data gave a very good indication it did not yet answer hypothesis three if the data was not used for further calculations. Since the sample company prohibited the use of exact figures regarding profit contribution of their products as they are strictly confidential, assumptions needed to be made. For further calculation therefore a profit contribution between 40 to 80 per cent was assumed. This is a wide



range but covers the profitability rates in the industry. Based on the raw data it was found that an average customer in the different segments looks as follows:

<u>Customer segment</u>	<u>Turnover</u>	<u>No. customers</u>	<u>Turnover per customer (€)</u>
Partner	1,843,805	37	49,833
Dialog	2,083,698	80	26,046
Info	6,758,983	2,010	3,363

Out of these figures the contribution margin for an average customer was calculated as shown in the following Table 13.

*Table 13: Contribution margins at 40 per cent for average customer per customer segment*

<b><u>Contribution margins at 40 per cent for average customer per customer segment</u></b>							
Custom- er seg- ment	Turn- over per custom- er	Programme member			Non-member		
		share of wallet		Contribu- tion margin 40%	share of wallet		Contribu- tion margin 40%
		per cent	Amount (€)		per cent	Amount (€)	
Partner	49,833	48.1%	23,970	9,588	31.2%	15,548	6,219
Dialog	26,046	39.8%	10,366	4,147	19.4%	5,053	2,021
Info	3,363	37.8%	1,271	508	25.8%	868	347

The profit contribution was calculated at the lowest level of 40 per cent to make sure the profit levels were not overstated. In fact 40 per cent is a very safe assumption. A calculation using the real profit level of the sample company would potentially deliver a better picture. As mentioned above however this was not possible since it was promised to the sample company to exclude commercially sensitive data in this

text. Since the 40 per cent assumption is a rather low level in the industry this meant that if the  $H_1$  hypothesis was confirmed for this low profit level there was no need to test it for higher profit levels since the proportion would have become even more favourable. This is especially true due to the fact that the cost of the programme is always the same. These costs at the sample company were set to one per cent of the turnover made with a customer. Therefore the calculation furthermore needed to be adjusted to include the cost of the programme. After the deduction of the one per cent the figures looked as follows:

<u>Customer segment</u>	contribution margin <u>member</u>	<u>non-member</u>
Partner	9,090	6,219
Dialog	3,886	2,021
Info	475	347

The figures for non-members stayed as above since they did not bear the additional cost of the programme.

In a final step the fixed costs of the programme according to the formula presented in section 5.2.1. “Development of research methods” that is used to calculate the customer lifetime value needed to be included in the calculation to adjust the contribution margin for programme members. After the deduction of these costs the figures looked as follows:

<u>Customer segment</u>	contribution margin <u>member</u>	<u>non-member</u>
Partner	9,067	6,219
Dialog	3,863	2,021
Info	452	347

For the **third set of hypotheses** the numbers that were calculated from the raw data looked as follows:

<u>Customer segment</u>	contribution margin <u>member</u>	<u>non-member</u>
Partner	9,067	6,219
Dialog	3,863	2,021
Info	452	347

The number of customers reflected in these figures was

Partner	37
Dialog	80
Info	2,010

The variance and standard deviation for the contribution margin of 9,090 for the customer segment Partner were calculated as 12,536,233 and 3,541. The calculation of the variance for all three customer segments was done manually in Excel (as all other calculations as well) and reconciled with the result obtained by using the Excel formula "VARIANZA". This way it was made sure that the manually calculated results were correct. Based on this calculation of variance and standard deviation the input parameters and the calculation of  $z_{calc}$  looked as follows:

$$n = 37 \quad \bar{x} = 9,067 \quad s^2 = 12,536,233 \quad s = 3,541$$

The test statistics was given by:  $z = \frac{\bar{x} - \mu}{s/\sqrt{n}}$

With  $H_0: \mu \leq 6.219$

$H_1: \mu > 6.219$

The formula that was applied for this test according to literature is used to test a population mean (Wisniewski 2009, p. 7). A z-test however is used only if the sample size is higher than 30 (Woodbury 2002). For a smaller sample size a t-test would have to be used (ibid.). It is used if the variable of interest is normally distributed also for smaller samples (Harry et al, 2010). A normal distribution is assumed if the sample size is above 30 (Beri 2006). Since the sample size (n) was above 30 and since it was a population mean that needed to be tested (average contribution margin) the formula could be applied for testing the third set of

hypotheses. The formula applied for the test is applicable for a random sample (Martin & Bridgmon 2012). As described above in section 5.3.1 “Sample type and size” a random sample was taken. Statistics using the standard deviation as distribution measure, such as the z-statistics, require a parametric interval scale (Gustavsson 2007).

Based on the formula above  $z_{\text{calc}}$  was calculated as follows:

$$z_{\text{calc}} = (9,067 - 6,219) / (3,541 / (\text{square root } 37))$$

$$z_{\text{calc}} = \mathbf{4.89}$$

This value was out in the right tail, so it was very unlikely to come from a distribution whose population mean was 6,219.

The variance and standard deviation for the contribution margin of 3,886 for the customer segment Dialog were calculated as 384,031 and 620. Therefore:

$$n = 80 \quad \bar{x} = 3,863 \quad s^2 = 384,031 \quad s = 620$$

With  $H_0: \mu \leq 2,021$

$H_1: \mu > 2,021$

Calculating:  $z_{\text{calc}} = (3,886 - 2,021) / (620 / (\text{square root } 80))$

$$z_{\text{calc}} = \mathbf{26.57}$$

This value was far in the right tail, so it was very unlikely to come from a distribution whose population mean was 2,021.

The variance and standard deviation for the contribution margin of 452 for the customer segment Info were calculated as 301,889 and 549. Therefore:

$$n = 2,010 \quad \bar{x} = 452 \quad s^2 = 301,889 \quad s = 549$$

With  $H_0: \mu \leq 347$   
 $H_1: \mu > 347$

Calculating:  $z_{\text{calc}} = (452 - 347) / (549 / (\text{square root } 2,010))$

$$z_{\text{calc}} = \mathbf{8.55}$$

This value was also far in the right tail, so it was very unlikely to come from a distribution whose population mean was 347.

This led to the following conclusion: since all values for  $z_{\text{calc}}$  for all three customer segments were in the right tail of the distribution it was unlikely to have come from the distribution under the null hypothesis.  $H_0$  is rejected at the 1 per cent level of significance.

#### **6.2.4 Hypotheses testing summary**

The consolidated results of significance testing for all quantitative hypotheses could be seen in Table 5 above.

As shown in this Table above for the first and the second set of hypotheses the  $H_1$  hypothesis could be confirmed. For the second set of hypotheses the solution was ambiguous due to the fact that different results were obtained in the different tests and for different customer segments. Since it was however confirmed that the average revenue was significantly higher for the customer segment that was targeted by the customer reward programme dependent on the time a customer had been member of the customer reward programme the  $H_1$  hypothesis could carefully be confirmed as well.

After testing the quantitative hypotheses as just now described in this section the results of the qualitative element of the research related to insight into customer buying behaviour and customer information will be discussed in the following section.

### **6.3 Results of qualitative analysis (objective 4)**

The fourth operational research objective that was intended to support the analyses undertaken with the quantitative hypotheses one to three needed to be analysed qualitatively due to the fact that prior to the introduction of the reward programme there was no transactional data from customers that could have been compared with the situation after the introduction of the programme. Therefore a quantitative approach based on figures only as in the other hypotheses was not possible. Also master data from customers was only available based on estimates from sales force members prior to the introduction of the customer reward programme at the sample company. This means there used to be a high risk of operating with wrong master data about customers that in turn might have led to wrong business decisions and a waste of marketing budget due to wrong messages to customers.

To be able to judge on the fourth operational research objective three interviews were conducted. The respondents to the interviews were directly or indirectly responsible for the success of the customer reward programme at the sample company. The roles of the respondents were:

- Head of CRM
- Head of Customer Marketing
- Customer Intelligence Manager

The number of interviews according to literature depends on the length of the interviews and on the depth of the conversation as well as on the information obtained and the topic area in due consideration of the research focus (Brennen 2013). The interviews conducted with these three interviewees delivered deep insights covering the research topic. The answers obtained from these three respondents content-wise were the same and led to the same conclusion. Taking this into account and the fact that these three people were the ones that were very close to the customer reward programme and the main people who were able to make judgements, the number of respondents seemed to be reasonable. According to Brennen (2013) no further interviews need to be conducted if the same answers are given repeatedly.

The interviews that had been conducted were based on an interview guideline. A sample of this guideline can be seen in Appendix 3. Qualitative research however requires openness in interview design and the interviewer should therefore not stick too much to the guideline or interrupt answers of the respondent in a disadvantageous moment (Mayer 2006). Therefore the interviews were conducted according to the guideline with room for discussions that helped to answer the research question but were not included in the guideline. This approach enabled the researcher to discover some interesting data that was delivered by the Customer Intelligence Manager of the sample company and would not have been discovered without this open approach. The data will be described in detail later in this section.

An interview with the Head of CRM of the sample company was conducted. The following statements were made.

With respect to the question *“Was it possible to gather more relevant customer information through the customer reward programme compared to the status quo without the programme?”* the Head of CRM delivered the following answer:

- *“If a customer wants to enrol in the programme he or she needs to register. During registration the customer needs to enter master data such as size of the farm and crops cultivated, meaning correct master data is delivered directly from the customer and not based on the estimates of a third person compared prior to the introduction of the reward programme”*

In answer to the question *“Was it possible to gain insight into customer buying behaviour through the customer reward programme?”* the Head of CRM gave the following responses:

- *“Prior to the implementation of the reward programme the company did not have any useful data regarding transactions with customers”*
- *“regarding sales and products bought by the customer estimates from the sales person talking to a customer, which in many cases was wrong, used to be the main source of data”*

- *“Now after the introduction of the programme the sample company knows which products a customer has bought since on every product there is a code and the customer needs to report this code to the company to be able to get the reward. The code however reveals which products are related to that code. Therefore the sample company knows exactly which products, how many of them and which packaging size were bought by the customer”*

The most interesting statement from this respondent, who was responsible for drawing conclusions from the data that was delivered through the customer reward programme at the sample company, was related to the second question above:

*“basically we did not have any data prior to the customer reward programme related to the buying behaviour of our customers. Now we have data that shows us on customer level who bought which product and therefore which customer potentially is interested in a certain product that we offer to the market. From the product bought we are able to derive the crops cultivated and are now able to target this particular customer individually and offer a particular product that might be interesting for him at a certain moment in time”.*

This statement in combination with the other statements made by this respondent proved the assumption that the transparency had improved a lot due to the implementation of the customer reward programme. The sample company came from a situation where some master data was available based on assumptions of sales people. But now after the introduction of the customer reward programme the number of customers where master data was available (delivered directly by the customers) had increased, but even more importantly information on buying behaviour was now available which had not been in place before at all.

In addition to the interview with the Head of CRM of the sample company an interview based on the structured interview guideline was performed with the Customer Intelligence Manager of the sample company. During the interview different databases were mentioned by this interviewee. These databases were analysed to determine whether or not they contained information advantageous for this research. It was found that these databases included very beneficial data.



Therefore they were used and queries to these databases were run to underpin the arguments of this respondent. The questionnaire including data retrieved from internal and external databases as well as governmental statistics also mentioned first in the interview delivered the following results:

- The number of farms including big, medium-sized, small farms and family businesses in Germany was about 282,000
- The total agricultural area available in Germany was about 16,663,200 hectares
- The total space of cultivated area in Germany summed up to about 11,848,700 hectares
- Turnover that the sample company made in total in all business areas, meaning crop protection as well as seeds, with all customers in fiscal year 2013 was 356,800,000 euros
- Number of reward programme members in the sample company was about 30,000
- Of these, 19,215 delivered master data through the customer reward programme. This means the sample company knows how big they are in terms of area cultivated and which crops they cultivate
- For roughly 8,000 out of these approximately 19,000 customers that delivered master data through the reward programme other sources such as estimates of sales people regarding master data was available without the programme. As mentioned above these estimates did however have a huge potential for error. Therefore the number of customers that the company had not known prior to the implementation of the programme in terms of their master data was 10,865
- Information regarding the use of area cultivated by customers where information was delivered through the rewards programme was 4,145,203 hectares
- Out of these 4.1 million hectares the company had estimates from sales people for approximately 2.8 million hectares. Therefore the reward programme created new knowledge for 1,367,263 hectares of land
- Through the reward programme the sample company created information regarding turnover for 19,904 customers

- After the introduction of the customer reward programme the sample company was now able to explain a turnover of 110,019,164 EUR. This means the company knew which customers bought which products totalling this amount of money

The most interesting result of the questionnaires was that the sample company through the introduction of the customer reward programme was now able to explain 30.8% of their revenue (110,019,164 EUR / 356,800,000 EUR). This meant the company did not know what individual customers bought prior to the introduction of their customer reward programme. Now they knew exactly the sales to these customers. They were now able to understand which products a customer might have been interested in. Prior to the introduction of the programme, marketing and sales activities had to be planned and run on estimates from sales people. These were however by no means as good as information given directly through the codes on the products that were registered by the customer through the programme. Therefore the sample company was now able to target these particular customers with tailored offers and communication.

Simonson (2003) argues that:

*“Incorrect assumptions about a customer’s preferences can be irritating and even offensive, with the damage to the relationship between the company and the customer greater than the potential gain in loyalty due to a successful customized offer”.*

Another study revealed that customer attention is increased if customised offers are presented to them (Tsai & Huang 2007). Information on the potential needs that was gained through the programme on the one hand regarding sales to the customers and on the other hand regarding the crops cultivated enabled the sample company to develop such individually tailored offers. It also gave a strong indication on the most preferable contents of the communication with a particular customer.

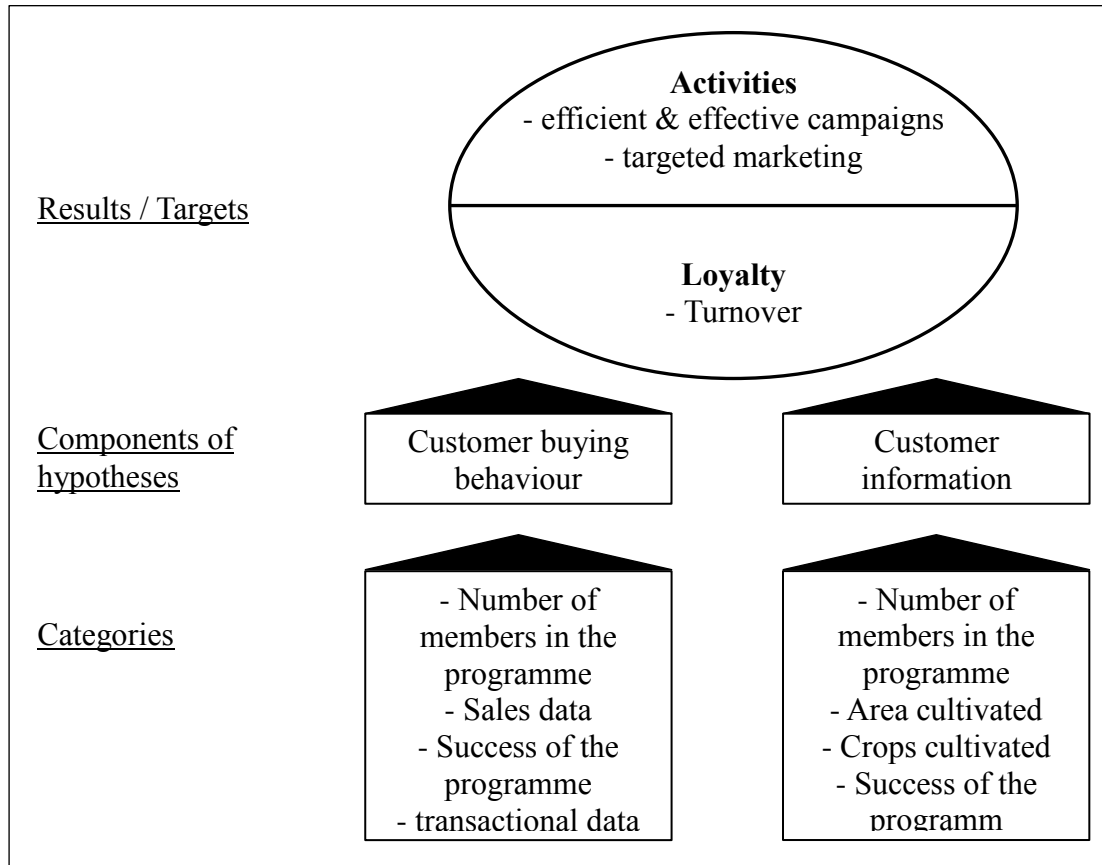
The third interview that was conducted with the Head of Customer Marketing of the sample company also strongly confirmed the arguments above. He also put strong emphasis on the data that was delivered through the programme by expressing that

there are now “*many customers in [the programme] and a lot of data*” is available. In this interview the targets of the programme – “*to create customer loyalty*” and to put the company into a situation where it is able to “*make use of the data that we generate*” – were confirmed. Very important also was that during this interview as well as in the other interviews it was mentioned that after the introduction of the programme transactional data is available, which was not the case without the programme at all, and that the amount of master data available from customers has also significantly increased. It was also mentioned that through the programme a considerable amount of the business was represented and that he “*never reckoned [...to] obtain so much data*”. Therefore the conclusion out of this interview and that was explicitly confirmed by the interviewee as well was that the targets of getting insight into customer buying behaviour as well as to provide customer information through the customer reward programme was achieved. The entire interview with the Head of Customer Marketing of the sample company can be found in “Appendix 4 – Qualitative research example – interview with Head of Customer Service”.

Programme-specific advantages that were mentioned by the interviewees that were related to the programme but did not contribute to the research questions were disregarded in the analysis. Such answers for example were our customers are more satisfied with our programme compared to other programmes because “we have attractive bonuses” or “the programme is easy to use”. Even though such statements were very interesting and had the potential to be tested in detail they were not in the scope of this research.

The categories that were touched upon by all interviewees are presented in Figure 13 below.

Figure 13: Categories after aggregation of qualitative interviews



These categories were developed to summarise the different arguments. Out of the fourth set of operational research objectives the two areas of interest were extracted and as shown in the Figure above were considered the essence or as named in the Figure components of the research objective. The question here was how the respondents address these two areas of interest. Therefore the answers to the interviews were investigated to find commonalities and statements that were mentioned by the respondents and that address the areas of interest. To be able to cluster these statements they were then put together under a “headline” for statements that addressed the same content. In the Figure above these are called categories. The category “number of members in the programme” for example was touched upon by many statements such as “*We have a high acceptance. We have a high number of members*”. This statement was backed up by statistical data from an internal database that shows that the number of reward programme members in the sample company was about 30,000. After the development of these categories the interviews were again analysed with respect to these categories to make sure that all statements relevant to a category had indeed been considered.

After that the categories that had been developed were then assigned to one or both of the components of the hypotheses. Here the main question was whether or not a particular category was relevant to one of the areas of interest or as called in the Figure above “components of hypotheses”. A category was considered relevant if an impact on the area of interest could be derived in the context of the research question / hypotheses. This was done by questioning the statements in terms of “how does it have an effect on customer behaviour or customer information”. The statements related to transactional data of members in the programme for example were analysed. Did they have an effect on insight into customer buying behaviour? From the way the research hypotheses were discussed in the literature review and how the statements were given from the respondents, this question could be answered with “yes”. This was especially true since the respondents confirmed this relationship. As an example one of the respondents said: *“Now after the introduction of the programme the sample company knows which products a customer has bought [...] and further “Therefore the sample company knows exactly which products, how many of them and which packaging size were bought by the customer”*. The results and targets were also mentioned by the interviewees and confirmed that they also expect to increase customer loyalty through the programme. An example of this was the statement made by one of the respondents: *“Our target is – of course we want to become more efficient in our campaigns. Let me put it this way: there are two greater objectives. The first one is to create loyalty as such – that people say I buy at the sample company because I get points. Second objective that we are able to make use of the data that we generate in our campaigns. And as I already mentioned to become more efficient and effective in all our activities. These are the targets.”* The interesting fact in the interviews was that it was mentioned that data delivered through the programme was not just a result of the programme as such. It was only supposed to create value if the data was used properly. In Figure 13 above this is shown by the different activities that were mentioned by the interviewees, where the term “activities” was only used to summarise their arguments. Mainly the respondents talked about how the data of the programme was (to be) used to run campaigns and how to make use of them in terms of delivering the right message to the right customer. The process of how the interviews were content analysed can also be found in Appendix 5 – “Process how interviews were content analysed”.

Based on the transparency and knowledge that the reward programme created (knowledge of sales volume, knowledge of which products a customer has bought, knowledge about size of the farm etc.) with regards to the discussion above the  $H_1$  research objective was to be confirmed and the  $H_0$  research objective needed to be rejected.

## **6.4 Discussion**

Research question:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

Aim of the research

- whether or not the implementation of a customer reward programme in the German agribusiness industry can be beneficial to a firm introducing such a programme.

The research objectives:

- To critically analyse success parameters (customer loyalty/financial parameters, such as revenue and profit margins) of the programme
- To analyse customer behaviour and perception in relation to the scheme
- To compare knowledge about customers prior to introduction of the programme with post-introduction knowledge

Following the results of both qualitative and quantitative analysis in this section the literature discussed earlier in this text will be compared with the actual findings from the data analysis.

As discussed above, Lamb, Hair and McDaniel (2010) state that the common elements – situation analysis (SWOT analysis is an example), definition of objectives, determination of a target market and making a decision regarding the

appropriate marketing mix – should be included in every marketing plan. At the sample company this process resulted in the decision to run a customer reward programme. The SWOT analysis provided different arguments and reasoning to do so. The most important items are discussed as follows and mirrored with the results of the analysis. It was said that the most interesting segment for a potentially successful customer reward programme are smaller and medium-sized customers. Taking into account the results of the hypotheses test this statement was true especially for the second set of hypotheses. In the sample analysed the strongest association related to average turnover per customer was found in the small customer segment “Info”. For the third set of hypotheses related to profitability the medium segment delivered the strongest association, although it needs to be considered that that association between membership in the programme and profitability was very strong in all segments. Therefore it could not be said that the programme worked best for a particular customer segment in this respect. The high attractiveness of the programme due to an integrated solution portfolio that was stated in the SWOT analysis was indeed mentioned during the guided interviews conducted for the fourth set of research objectives. It was mentioned by the interviewees that offering bonus points on the two product categories crop protection products and seeds products made the programme successful. This statement corresponded with findings described in literature that the number of buying options is associated with the cross-buying extent of customers within the programme due to the fact that they try to purchase within the programme to obtain more bonus points and on top of that due to the high costs (loss of bonus points and rewards) they might have if they leave the programme (Papenhoff 2009, Uebel & Dangelmaier 2013). Therefore the bigger scope of the sample company indeed indicated an advantage compared to competitors. The potential market share gain that was mentioned in the SWOT analysis of the sample company was implicitly analysed in the third set of hypotheses. Here it became apparent that programme members did indeed show a higher share of wallet than non-members of the programme. The source data was structured in a way that allowed the same analysis to be undertaken for competitor programmes as well. Here the association between membership in a customer reward programme was also obvious. This finding in turn is covered by literature as well. As a first example the study already introduced above conducted by Leenheer et al. (2003) that proved a positive effect of participation in a customer reward programme

on the share of wallet can be mentioned. The second example is a study performed by Verhoef (2003) using data from a financial service company that explicitly resulted in the recommendation to introduce a customer loyalty programme to maximise customer share. The same finding was made for the customer reward programme of a convenience store chain and also covers the results from this research related to the share of wallet (Liu 2007). Therefore the results of this analysis confirmed the findings of prior researchers and showed that it is also applicable for the agribusiness industry. The potential impact of a customer reward programme on the share of wallet was not only mentioned by the SWOT analysis but was also touched upon in the interviews done for the qualitative analysis. This demonstrated that the association between membership in a customer reward programme and the share of wallet even though not explicitly stated as an objective for this analysis was an important topic for companies when they introduce a customer reward programme. In fact from all means of marketing communication such as mass media or the direct mail medium, which all pursue the goal of extending the period that the customer has a relationship with the company with as well as of increasing or optimising the share of wallet, the customer reward programme is considered the one that shows the highest level of customer orientation (Wirtz 2009). In the SWOT analysis it was also stated that better knowledge can close a knowledge gap that was identified prior to the introduction of the programme and that the knowledge created through the programme enables the company to make differentiated and customised offers to individual customers. As discussed above the traditional 4 P's of marketing – product, price, promotion and place – are increasingly challenged and extended by additional dimensions such as people, process and non-P's such as customer relationship management or knowledge management (Lee 2001, Little & Marandi 2003, Waterschoot & Van den Bulte 1992). Related to knowledge management, the lack of knowledge about customer buying behaviour is considered one of the potential marketing weaknesses (Nijssen & Frambach 2001). Thierauf (1999) even pleads to rethink the entire marketing function in the light of knowledge management and to consider the entire marketing mix to introduce a knowledge orientation that eventually enables the organisation to gain competitive advantage. The importance of the creation and especially the proper use of the knowledge gained through the customer reward programme was emphasised during the qualitative interviews. Therefore conformity between



statements made by the interviewees and the statements in literature with respect to knowledge management and knowledge creation could be found. The figures from databases that were mentioned by the Customer Intelligence Manager of the sample company related to the amount of data created through the programme were evaluated for this research. It was found that there was indeed a huge amount of data created through the programme. The statements made during the guided qualitative interviews with the marketing people of the sample company emphasised the importance of creating this data. This reconciled to the literature where many researchers also argue that the greatest benefit of customer reward programmes does not only stem from increased financial measures or improved customer relationships but from the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006). Furthermore a significant competitive advantage can be created by creating customer knowledge (Gibbert et al. 2002). The statements made in the interviews related to the meaningful use of the knowledge created and the stress on the proper use of the data in everyday business life to create competitive advantage confirmed the conclusion from the authors cited in the literature review above as they point out that the creation of competitive advantage is the main goal of each marketing strategy and that it is achieved by creating more value to customers than other competitors (Mohr, Sengupta & Slater 2010). The creation of value related to the customer reward programme at the sample company according to the interviews conducted with the marketing people especially stemmed from the ability to make use of the data in a way that a customer could now be targeted with specialised offers based on his/her prior purchases or information that was given related to the size of the farm or crops cultivated, for example. These individual offers were considered to create value to the customer since they are tailored and may even trigger a need that this customer was not aware of before due to a lack of knowledge that a certain problem can be tackled using the products of the sample company or that certain products may increase the efficiency or the yield of an acre.

Looking at behavioural aspects, Rauyruen & Miller (2007) conclude that overall satisfaction plays a key role in the creation of customer loyalty in a so-called B2B environment and that “management should pursue strategies that aim to increase attitudinal loyalty”. The importance of this attitudinal loyalty was confirmed in the

interviews conducted. At least equally important however was the finding that there was an association between membership in the customer reward programme and the willingness to recommend the programme, which was found to be able to answer operational hypotheses one. In fact the finding that a significantly higher proportion of customers that had joined the programme were willing to recommend the products of the firm compared to the proportion of customers that had not joined confirmed this statement. The method used for this analysis recommended and confirmed by different authors to analyse the willingness of customers to recommend a company or its products turned out to be appropriate and delivered comparable results as in prior studies (Reichheld 2003, Reichheld & Seidensticker 2006, Keiningham T. et al. 2008). Dowling and Uncles (1997) argue that customers are not by default loyal and that a customer reward programme is unlikely to alter this behaviour. The analysis prepared for hypotheses two and three however did not confirm this statement. In fact it was found that customers that were members of the customer reward programme showed a significantly higher turnover compared to non-members of the programme. The association noticed was even higher the longer a customer had been member of the programme. Also the market share analysed for operational hypotheses three was much higher for the group of members of the customer reward programme. Derived from this it could potentially be assumed that a customer reward programme could indeed stimulate sales for the time a customer is member of the programme (Ehrenberg et al 1997). The same source however concluded that promotions through customer reward programmes do not have a long-term, what they call after-effect. These so-called after-effects could not be judged based on the study presented here since the group of prior members that had left the programme was not analysed for several reasons. First of all this was not in the scope of the research question and secondly the data source for this customer group would not have been sufficient to conduct this analysis.

During the entire research phase the issue of validity and reliability had to be addressed to make sure the results were not biased and delivered the right answers in the context of this research. Bias could have happened already in an early phase when the research sample was selected. This applied to both samples for the quantitative and the qualitative part of the research. To make sure such bias did not happen a random sample was taken for the quantitative part, meaning the customers

that delivered information were not chosen according to particular criteria but by chance. This way every customer had the same probability of being asked. The approach of using a random sample is accepted in literature since it is intended to address the issue of internal validity by removing the risk of researcher selection bias (Altman 2006). For the qualitative part of the research the challenge was to choose interviewees that were most relevant to the research. To make sure the selection was not biased by the researcher the most senior people were identified that were closest to the programme. This was done by first asking the senior management who they thought would be able to judge on the question implied in the research hypotheses and second by verifying this information with an overview of the organisation. The second step was necessary since the management information could be biased as well.

As discussed earlier validity in general terms is the ability of the concept or characteristic in question to systematically be measured by the methods applied, where this especially is an issue in qualitative research where the results may depend on the skills of the researcher and might be biased by his or her opinion or assumptions about the research object or causality (Pellissier 2007). It was just now discussed what was done to prevent selection bias. On top of that during the quantitative research the researcher stayed detached from the sample at all times. This was ensured by using a third-party service provider to undertake the questionnaires. In the qualitative part interviewer bias could have been an issue. It is suggested that close monitoring of interview quality can identify and correct most interviewer problems (Reis and Judd 2000). Therefore a structured interview was performed with a set of predefined questions. Only where an answer of an interviewee needed additional questions due to the fact that an answer was not clear or needed back-up questions were the structured interview questions expanded. On top of that the interviewee was not in any way in a subordinate or superordinate relationship with the researcher and therefore entirely independent without any fear of facing any type of consequences related to the answers given.

Data triangulation can be achieved by the use of different data sources (Brown 2001). In the research presented in this text, primary data from questionnaires and secondary data from databases were used. As an example the share of wallets used

for the third set of hypotheses were calculated using the data gathered from questionnaires. This data was then verified with secondary data from internal databases that included the turnover made with customers that had enrolled in the reward programme. Triangulation was also achieved by the use of different research methods. In the literature review this approach was confirmed by Cohen (2009). The different research methods used included qualitative and quantitative elements in the form of questionnaires, databases and structured interviews as described above.

Since the results related to the four hypotheses were significant it was concluded that the samples were transferrable to the entire population but also to the entire agribusiness industry. This was underlined by the results of the third set of hypotheses, where the shares of wallet for competitor companies delivered identical results. Even though the cost structure of these companies and their customer reward programmes were not known for this research, the results from the analysis at least for the parameters that were known delivered the same tendency as in the sample company. Since in the sample company these parameters led to the rejection of the  $H_0$  hypothesis and the confirmation of the  $H_1$  hypothesis it could be concluded that the results of the research were transferrable to the entire agribusiness industry.

## **7 Conclusions, recommendations and suggestions for further research**

After the presentation of the results of the analysis related to the information provided by the sample and a reflection of the literature base with the research results presented in the last chapter, this final chapter will focus on the conclusions of the research. The effects for companies especially in the industry that was analysed during the research will also be discussed. Finally suggestions for further research derived from the results and discussions presented in this paper will be made. To summarise the conclusions prior to the discussion below it can be said that based on the findings in this research the introduction of a customer reward programme in the industry presented here is worthwhile. This is especially true since the programme shows a positive relationship with market shares, financial parameters, and customer loyalty. On top of that the programme creates value by delivering useful customer information that can be exploited for marketing purposes and targeted marketing initiatives.

The research question based on the literature presented in the initial chapters and based on the specific situation in the industry the sample company operates in as well as the gaps identified was:

- Is there a positive relationship between a customer reward programme and the likelihood of increased success parameters?

The reason for including competitive advantage in the research question was the finding in literature that the main goal of each marketing strategy is the creation of competitive advantage by delivering more value to customers than other competitors (Mohr, Sengupta & Slater 2010) and the identification of customer satisfaction as a source of competitive advantage that as a result ends up in a profitable customer relationship (Kotler and Armstrong 2010).

Different success parameters were identified and included in the research hypotheses. Examples of the sources that led to the conclusion that these particular parameters

needed to be covered by the analysis introduced in this paper to be able to answer the research question can be found in the following Table 14.

*Table 14: Examples of sources for identification of success parameters*

<b><u>Examples of sources for identification of success parameters</u></b>	
<b>Parameter</b>	<b>Source example</b>
Customer loyalty	<p>Promotional activities potentially have an effect on customer satisfaction (Donaldson &amp; O'Toole 2007).</p> <p>Overall satisfaction plays a key role in the creation of customer loyalty in a so-called B2B environment and that “management should pursue strategies that aim to increase attitudinal loyalty” (Rauyrueen &amp; Miller 2007).</p> <p>Brand loyalty is intended to have a positive effect on brand equity (Lassar, Mittal &amp; Sharma 1995).</p> <p>Reward programmes are intended to increase customer loyalty and customer relationship with the firm (Bolton, Lemon &amp; Verhoef 2004).</p>
Revenue	<p>A retained customer potentially shows increased revenues and has a tendency to become less price sensitive and companies can charge premium prices (Reichheld 1996).</p> <p>Research widely accepts increased revenue as a success measure for a customer reward programme (Leenheer et al. 2003; Reichheld 1996; Glusac 2005).</p>

Profit contribution	<p>Customer satisfaction delivered by a firm or its products result in a profitable customer relationship (Kotler and Armstrong 2010).</p> <p>A customer needs to be retained for a certain period of time to become profitable (Reichheld 1996).</p> <p>Contradicting findings of Leenheer et al. (2003), Helgensen (2006) or Söderlund and Vilgon (1995) make a strong case for analysing this parameter.</p> <p>Customers in a customer reward programme are a profitable group (Yi and Jeon 2003).</p>
Customer insight	<p>Gaining customer knowledge can potentially provide a significant competitive advantage to companies (Gibbert et al. 2002).</p> <p>The greatest benefit of such programmes is the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006).</p>

Based on the success parameters identified, the research hypothesis was set.

## 7.1 Effects on customer loyalty

In relation to the first operational hypothesis the following can be concluded with regards to customer loyalty.

Based on the findings in the results chapter the  $H_1$  hypotheses had to be confirmed. The finding was that the parameter that was introduced as a means to analyse customer loyalty, namely willingness to recommend the firm and its products, was positively associated with membership in the programme. Interestingly the association was most significant for the group of small customers. At the sample company these customers belong to the customer segment “Info”. Going back to section 2.1.3.1 “Definition of target markets and market segmentation” one can recall that mainly small customers were targeted by the customer reward programme due to the fact that bigger customers were usually treated individually. Of course a positive association of customer loyalty and membership in the customer reward programme would be desirable for all companies that establish such a programme.

Even though there was a difference in the findings related to the customer segments analysed, the research results suggested that a customer reward programme indeed increases customer loyalty for those customers who participate, especially the smaller customers. It is however important to keep in mind that this reasoning was based on the results of the analysis and also on how the research hypotheses were derived from literature. Therefore the association observed through the research might not have been entirely based on the fact that customers were members of the programme. There was also a possibility that especially loyal customers or customers that were satisfied and therefore were willing to recommend the firm were more likely to join a programme than those who were not satisfied. This indicates a limitation to the research done and also gives an opportunity for further analysis. The finding that members of the programme were more willing to recommend the company and its products and derived from that showed a significantly higher level of loyalty to the company became even more interesting however when their spending behaviour was considered.

## **7.2 Conclusions on revenues**

As seen above the analysis revealed that there was a significant association between membership in the programme and increased revenues, leading to the conclusion that members of the customer reward programme did show an increase in revenues compared to the status quo without the programme. In the smallest customer segment – where the amount of data was much bigger than in the other customer segments – the difference between non-members, members that joined the programme only in 2013 and members that had been in the programme for two consecutive years (2012 and 2013) was analysed. Interestingly the group of non-programme members delivered the lowest revenues and the group of programme members that joined only in 2013 showed higher revenues. The group with the biggest average revenues was the group of programme members that had been in the programme in 2012 and 2013. The difference was significant. This led to the conclusion that a higher revenue could be expected the longer customers stayed in the programme. The most significant results were also obtained in the smallest customer group. This result confirmed the findings of Liu (2007) in a convenience store chain, where customers joining the



programme steadily increased their spending. This is an important finding since the two industries are completely different and especially since the research presented in this text was done in a B2B environment. Therefore the results suggest that the effects on revenues may be a general pattern that can also be found in a B2B environment, at least in the industry that was analysed.

### **7.3 Interdependency of loyalty and revenues**

By pulling together the effects found on customer loyalty and the revenue development an interesting conclusion can be drawn. It means that the second findings on the second hypothesis combined with the first set of hypotheses customers analysed not only showed increased revenue with the company compared to non-members but also potentially increased the company's revenue by word-of-mouth recommendation. If this was considered the effect on company revenues by the group of customer reward programme members would be even greater than the effects shown through the analysis of their own revenues. The same applied to the group of detractors, where negative word-of-mouth recommendation was more likely. The results of both sets of hypotheses (1<sup>st</sup> and 2<sup>nd</sup>) in combination also allowed some insight on how the loyalty / spending process worked within the small customer segment. Members of the programme showed higher loyalty based on the measurements taken. The fact that this was true not only for members that had been in the programme for at least two years in a row but also for new joiners of the programme, indicates that first loyalty increases (Hypotheses 1) and spending starts increasing only after joining the programme (Hypotheses 2).

### **7.4 Considerations on customer profitability**

A calculation for average customers of each customer segment was done. These customers were subdivided into customer reward programme members and non-members. As a basis for the profit contribution calculation the shares of wallet for each customer segment and member/non-member combination were calculated from the raw data. Surprising results were obtained here already. In all customer segments the share of wallet in the group of customer reward programme members was

substantially higher compared to the related group of non-members. Therefore it seems that there is a strong association between membership in a customer reward programme and share of wallet. This finding is very much generalizable, especially if one considers that the same association was found for competitor programmes as well. It corresponded with the findings of Leenheer et al. (2003) that customer loyalty programmes in general have a positive influence on share of wallet. A difference compared to this study however could be found if the profitability as required to be calculated for this set of hypotheses was considered. Leenheer (Ibid) found that three out of seven programmes were not effective in terms of profitability and that four programmes gave more rewards away than they earned back in revenue. The research presented here showed a completely different picture as the group of programme members delivered a significantly higher profitability compared to the group of non-members even when the costs of the rewards and the programme costs were included in the calculation. This finding suggested that a customer reward programme in the agribusiness industry can be set up in a way that enables a company not only to incorporate the customers in the programme that spend a high share of their available budget on the company. It also means that the increase in revenues (substantially higher for programme members as discussed in the second set of hypotheses) is likely to be higher than the rewards that need to be given to the customers to trigger this increase.

## **7.5 Insight into buying behaviour and customer information**

As described in the previous sections the company came from no transactional data to a substantial amount of transactional data allowing customers to be approached individually based on the information provided through the programme, which led to the conclusion to reject the  $H_0$  hypothesis. The results clearly suggested that a customer reward programme increases insight into customer buying behaviour and delivers a substantial amount of customer information that would otherwise not be available. Many authors stress the benefits of such programmes related to the insight a firm obtains into customer buying behaviour and customer information (Byrom 2001, Dennis et al. 2001, Mauri 2003, Berman 2006). The research presented here confirmed that such insights can be acquired through a customer reward programme in the agribusiness industry as well.

## 7.6 Summary on conclusions

In all four operational hypotheses / objectives the  $H_0$  hypothesis was rejected. Therefore the conclusion related to the research hypotheses covering these four operational hypotheses was to reject the  $H_0$  hypothesis and it could be confirmed that very likely:

*“There is a relationship between membership in a customer reward programme and increased customer loyalty, financial parameters and better insight to the customer.”*

This finding was only related to the industry analysed during the time of analysis. Since however the association between the parameters analysed and membership in a customer reward programme was significant, the research suggests that these findings are generalizable at least within the industry analysed.

Based on these results and the answers to the operational as well as the research hypotheses the research question could be answered positively, meaning:

*“There a positive relationship between a customer reward programme and the likelihood of increased success parameters”.*

The research suggested this answer since the success parameters identified as means of competitive advantage were confirmed through the analyses related to the operational hypotheses conducted in this research.

## 7.7 Limitations

Following the suggestions for further research, the limitations to the research will be summarised in this section. As seen in different sections above there are clearly limitations that needed to be considered while doing the research and analysing the results.

A particular limitation became obvious right after the discussion of the research idea with the sample company. Confidentiality was guaranteed on some information that the sample company defines as “commercially sensitive”. This type of information was promised not to be published. Even though the information was available to the researcher it is not included in this text. The results however were calculated based on the correct data and information. A special consideration with respect to confidentiality needed to be given to the profit margin used for the calculations done for the third set of hypotheses. The profit margin was calculated but the sample company prohibited the use of the exact figure. The fact that the figures related to profit contribution are strictly confidential had to be accepted. A normal range in the industry however is between 40 to 80 per cent. Since the calculations even on the lowest level of 40 per cent already delivered clear and very significant results there was no need for interpretation. Taking this into consideration the limitation related to the confidentiality of the profit contribution does not have any negative effect on the validity of the results.

Another limitation is related to the number of customers analysed through the research. Due to the fact that the number of customers is very large it was only possible to include a particular amount of them and a small proportion. With 2,500 customers that were asked the number however is sufficient to be representative. Therefore as mentioned above the results are deemed to be transferrable to the entire population and the industry. The issue of generalizability as already touched upon in the section above had to be considered during the research. Generalizability is more an issue in qualitative than quantitative research and is considered an essential limitation of qualitative studies (Holm & Jonas 2004). Especially for the qualitative element of the research this had a few implications. Since most of the research was based on quantitative analysis for these parts generalizability was less an issue. As also already mentioned in the section above the number of sample items needed to be big enough to make sure generalizable results were obtained.

Another specific limitation related to the first set of hypotheses. The reasoning behind the finding that programme members are more loyal than other customers is that membership in the programme increases customer loyalty. In chapter 7 “Conclusions, recommendations and suggestions for further research” however it

was discussed that there may be a different reason, providing a good opportunity for further research.

Potential researcher bias was one of the limitations to this research. This is especially true if one considers that the researcher was part of the sample organisation. As described in section 6.5 “Literature reappraisal” this was mitigated by a positivist methodology, the use of a 3<sup>rd</sup> party research company and an objective working on the statistical analysis and interpretation of the results based on that analysis.

## **7.8 Recommendations**

The research presented in this text revealed that introducing a customer reward programme in the agribusiness industry can create value in different ways. It showed that:

- A customer reward programme had an impact on customer loyalty and members of the programme were more loyal than non-programme members
- Customer reward programme members were more willing to recommend the company and its products to other customers and therefore indirectly influence the revenues of the company positively
- Customer reward programme members showed higher revenues than non-programme members and this effect was higher for customers that had been in the programme for two years compared to members that had been in the programme only for one year
- Customer profitability increased even after the costs of the programme and the cost of the benefits given to customers were considered
- Customer information was substantially increased and transactional data could be obtained, giving opportunities for improved marketing activities

Following the results of the research presented by Dowling and Uncles (1997), which names three decisive reasons or situations when the introduction of a customer reward programme might be useful to the firm, it could be confirmed through the research done here that two of them are also valid in the agribusiness industry. The first statement they made was that “a customer reward programme should be

introduced if it directly enhances the product/service value proposition and creates a pull-effect from the market”. As seen during the research, customers were more willing to recommend the firm if they were a member of a customer reward programme. They also increased their spending with the firm and showed higher shares of wallet. This in turn led to increasing demand. The second statement from Dowling and Uncles was that a customer reward programme should be introduced if it “expands the ability of a product/service”. This was not in the scope of the research done. The third statement is that the introduction of a customer reward programme is worthwhile if it “neutralizes a competitor’s programme”. It was indeed found that the share of wallet was increased for members of a reward programme. Since this was the case for all competitor programmes that had been analysed it showed that once a customer was member of a programme there was some barrier for other competitors. This in turn however means that it is necessary for every company to introduce a customer reward programme if other competitors do so. It also means that a company needs to monitor market developments related to customer reward programmes thoroughly to not face any disadvantage by actions of other companies. It can however also conclude that it wants to have a first-mover advantage by introducing a customer reward programme prior to the others.

The research showed some general patterns related to the parameters tested, such as loyalty, revenue and profitability. Even though the patterns were noticed for all customer segments allowing general conclusions to be made, it was found that the programme had the biggest effect on small customers. This means a business might want to introduce a customer reward programme to improve the relationship and financial success with small customers while serving bigger customers individually. It might also want to introduce a customer reward programme to make sure already loyal customers especially in the small customer segment stay with the company and do not migrate to other companies and their products over time. Especially related to the parameters of customer loyalty and customer information, the effects noticed in relation to the membership in the programme were most evident in the small customer segment. This means a company needs to consider the introduction of a customer reward programme as an efficient means to communicate and to improve the relationship with these customers. Especially the communication part is decisive as it is said that “most companies do not know their end customer, even though

having good customer information generally is considered a competitive advantage” (Corbae et al. 2001). For each company facing the issue of insufficient customer information the introduction of a customer reward programme can therefore be strongly advised.

After these general recommendations related to any company in the industry observed what does it mean for the sample company specifically? First of all it means that the customer reward programme introduced was successfully related to the parameters analysed but since there was a lot of overlap with the targets the sample company had set for the introduction of the programme it also meant that the programme was successful in terms of target achievement related to the programme. Based on the findings the sample company is advised to carry on with the programme since members of the programme are more loyal to the firm and its products than non-members. Based on this finding it should also try to convince even more customers to join the programme. This is especially important since members also showed increased revenues compared to non-members. The fact that this finding applied to all competitor programmes that were analysed during the research also strengthens this argument. Therefore the marketing department of the sample company should increase its efforts to communicate the programme to customers, for example by putting messages on the products that explain the advantages of becoming a member of the programme. Since the result of the first set of hypotheses was that members of the programme were more willing to recommend the company and its products, it could take advantage of this situation and ask customers to recommend the customer reward programme to their colleagues. This could be done through the communication channels of the programme, such as email or post. To keep costs down the most active members could be asked first, and offered bonus points for successful referrals. These additional bonus points would not harm the profitability as seen in the calculations above due to the fact that the programme members are already much more profitable than non-members. For the planning of these actions the people dedicated to the reward programme should be supported by the head of marketing and the marketing leadership team, who should plan all actions strategically. Since in the industry observed there are natural cycles it should be considered when the best time to run such an action is; for example, farmers might not pay a lot of attention to it in the high season. Since it was found that particular

success parameters to customer reward programmes apply, namely customer loyalty, revenue, profitability (assessed through market share developments) and customer knowledge, these parameters should be measured actively in future by the people running the programme operationally. The results should be analysed by the head of CRM and his team. Therefore the questionnaire that is sent out annually should always contain the additional questions introduced for this research. It should be critically observed if there are changes in the success parameters in the future. This is especially important since the research introduced in this text was done in a particular moment in time covering a particular period. Therefore the sample company is advised to carry on measuring the recommendation rates from members/non-members and also the financial parameters (revenue and profitability) as well as market share developments. KPIs could be developed comparing these measures for both groups. The proportion of customers delivering information through the programme (master data and transactional data) should also be measured as a result of this research. Since the questionnaire delivers competitor information the data should also be used to observe competitor programmes and how they develop in comparison to the company's programme.

Another recommendation to the sample company and also for other companies is to concentrate on the small customer segment. According to the research and based on the criteria analysed, a customer reward programme in this industry works best in this segment. This statement is especially true for the first three hypotheses, since the most significant results were obtained for this segment with a small exception for the third set of hypotheses. The fourth operational research objective was not divided into the three customer segments, but it could be concluded implicitly that the answers mostly apply to the small customer segment due to the fact that these are the customers mainly targeted. In this context it is worth repeating that the small customer segment showed the highest values for customer loyalty for programme members and the most significant increase in revenues for customers the longer they had been in the programme. Only the significance testing for the third set of hypotheses showed the most significant relationship between membership in the programme and profitability in the customer segment Dialog, which is the medium category. The significance testing however delivered a very strong association for all customer segments.



## **7.9 Suggestions for further research**

It was mentioned in the qualitative interviews that the attractiveness of one programme over another is related to the kind of bonuses that can be obtained or the simplicity of the programme, as well as the fact in this case that one company is able to offer bonus points on a larger set of products (in this case crop protection and seeds products). Further testing could determine what makes one programme more successful than another.

As a result of the research shown here it was found that there are different levels of willingness to recommend a firm or their products related to whether customers are members of a customer reward programme or not. It was also found that revenues differ related to the status of membership and time spent in a customer reward programme. Even though these effects have been researched and a conclusion was drawn on the findings, it can be further researched what the effects on financial metrics related to the recommendations of promoting customers are. The same relates to the detractors. An analysis showing these effects could increase or weaken the argument that customer loyalty is desired and could show to what extent it actually has an impact on the financial metrics.

The additional analysis that was undertaken related to the first set of hypotheses comparing the net promoter score of customer reward programme members that only joined the programme in 2013 with members that had been in the programme in 2012 and 2013 suggests that the net promoter score development of the same population should be analysed over a longer period of time. According to the research presented here there is a strong association between membership in the programme and customer loyalty expressed through the willingness to recommend the company and its products. Therefore in terms of loyalty considerations the introduction of a customer reward programme is worthwhile and it encourages members to spend more money with that company. This statement is the result of the combination of the findings of the first and second sets of hypotheses as described above. If the analysis done for programme joiners in 2013 versus programme members in 2012 and 2013 was not an outlier (which is as described above likely

since the results stem from two different populations), the loyalty to the company potentially increases first and customers join the programme if they are already loyal to the company. Nevertheless, as described above the turnover increases as soon as they are members. To completely understand the motivation however and to clarify whether or not the finding was only an outlier based on the limitations mentioned above a further analysis with the same population of customers over a longer period of time should be done.

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## Appendices

### Appendix 1 - Questionnaire

#### Product, tank mixes, application timing

Which products or tank mixes have you sprayed (how often) in which stage (BBCH-stages open) and on which date?

How often have you used the same (identical) tank?

Are you using any mechanical means to control the weeds?

If yes, how many passes over the field (per protection)?

What kind of formulation does the product have? Is it liquid or solid?

Is the product you applied a solo (single) product or a product pack? If a product pack: Did you apply the whole pack or only this product out of the pack?

What is the exact name of the product pack?

On how many hectares did you apply this product / product mixes?

Which varieties were treated in this sequence of spraying ...? And on how many hectares? (please indicate exact area in hectares)

#### Targets

Against which weeds, grass, diseases or pests did you use the different products?

#### Application rate

What was the respective application rate in kg/l per ha of each product?

#### Effect satisfaction

How successful was the treatment with each tank?



1 = very good, 2 = good, 3 = regular, 4 = sufficient, 5 = bad, 6 = very bad

#### Reason for use

What were the reasons for choosing each of the products?

Who carried out the crop protection treatments?

#### Qualitative questions

##### Crop protection company

To which manufacturer do you assign each of the products?

##### Time of decision

When did you decide to use the respective crop protection product (MONTH/YEAR)?

##### Source of supply

Where did you buy the respective product ...?

In case of more than one source of supply: What percentage did you buy from the different sources of supply?

When did you buy/order the respective product from this source of supply (MONTH/YEAR)?

##### Price

Which final price (in €/loc. currency per kg or l) did you pay for the product (at each source of supply)?

Don't ask:

What was the farmer's price awareness?

Was the price including or excluding VAT?

Did you receive any discount for this product by your source of supply?

If yes, what kind of discount did you get?

How big was this discount?

Was the price mentioned including or excluding discount?

#### Personal recommendation

Who personally recommended the product to you?

#### Other sources of information

Which other sources of information drew your attention to the product?

#### Product change

Did you apply this crop protection product last year?

If no: Which product did you apply last year instead?

If no: Why didn't you apply the product again this year?

Will you use this year's product again next year?

#### Additional questions – primary data

Question 1: *“do you participate in a customer reward programme for crop protection products or seeds?”*

yes    no

<input type="checkbox"/>	<input type="checkbox"/>
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Question 1a: *“if so, which one?”*

<input type="checkbox"/>	Bayer (Premeo)
<input type="checkbox"/>	BASF (BASF ist mehr)
<input type="checkbox"/>	Syngenta (Bonusland)
<input type="checkbox"/>	Other _____(Name)

Question 2: *“did you participate in a customer reward programme for crop protection products or seeds in 2012?”*

yes    no

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Question 2a: *“if so, which one (2012)?”*

	Bayer (Premeo)
	BASF (BASF ist mehr)
	Syngenta (Bonusland)
	Other _____(Name)

Net Promoter Score:

Question 3: *“how likely is it that you will recommend the sample company or the products of the sample company to a friend or colleague?”*

	0	1	2	3	4	5	6	7	8	9	10	
Very unlikely												Very likely

## Appendix 2 – Excel tables third set of hypotheses

[illegible]

### Appendix 3 – Qualitative research guidelines for structured interview

Method: structured interview

Declaration that interview will be recorded if approved by respondent and request for permission to record interview.

Introduction to the research and background information

1. How far are you involved in the customer reward programme and what is your role?
2. How do you consider the success of the customer reward programme?
3. Which concrete targets are aimed to be achieved by the customer reward programme?
4. Were these targets achieved?
5. Was it possible to gather more relevant customer information through the customer reward programme compared to the status quo without the programme?
  - a. If no, what do you think why?
  - b. If yes, to what extent and how satisfied are you with the results?
6. Was it possible to gain insight into customer buying behaviour through the customer reward programme?
  - a. If not, what do you think why?
  - b. If so, to what extent and how satisfied are you with the results?

7. Would you consider the customer reward programme successful in terms of getting insight into customer buying behaviour and generating customer information?

## Appendix 4 – Qualitative research example – interview with Head of Customer Service

Declaration that interview will be recorded if approved by respondent and request for permission to record interview.

Introduction to the research and background information

1. How far are you involved in the customer reward programme and what is your role?

I am Head of Customer Service and the reward programme is within the responsibility of customer marketing and therefore I am the main person responsible for this programme. I do of course have a team that takes care of the programme operationally but I am the person responsible for the programme.

2. How do you consider the success of the customer reward programme?

Success in terms of members of the programme – there are different components of success – I can say we launched the programme in 2011. Now we have more than 30,000 members, which means a success to us in any case – that we just have them in. We have nearly half of them also active in the programme and we are able to generate very large amounts of data. If we look into different crops we see that we have a very big area covered. The area coverage increases the data quality that we can work with in our different campaigns.

- Interposed question researcher: area coverage; what is meant by that?

We see which companies are in and these companies state their cultivated area. And we know that we approximately represent one third of rapeseed area in our customer reward programme. That is a hell of a lot and it means if we start targeted action – we made this with Symetra market introduction – then we know that we are able to target one third of the German rapeseed area. So, you wanted to know “successful”. We have had European market research here where beside others customer reward programmes were inquired – that was a customer satisfaction survey – where primarily Bayer, BASF and Syngenta were surveyed and there was one aspect where we were significantly different compared to competitors in a positive way and that was within the topic of customer reward programme. Here customers gave better

ratings. We do however not necessarily have more members in the programme – that we are trying to check at the moment – but the ones that are in are very satisfied with it and therefore I regard the programme as a success. A further success is that we make more and more use of the data.

- Interposed question researcher: do you know what the reason is for that? The competitors in general have a comparable programme one can say.

Yes, what are the reasons? I think there are different elements. First of all in our programme one has the biggest chance to receive points – we have seeds and crop protection. The programme is easy to use. One can register quickly. One can enter the points through different channels up to simply sending them in. I think this is an advantage of the programme and I think we have very attractive bonuses. We have seen that the competition – Bayer for example – have redesigned the web pages of their programmes – that was now one year ago – and the web page does look very comparable to the one of our programme. Because we have really invested a lot to make it attractive. I think these are the main criteria but for sure it is seeds and crop protection – customers can earn points more quickly to finally obtain a bonus.

- Interposed question researcher: So that would be the most important item for you?

Yes, and simply the simplicity of the system. We did not measure that but it is really simple. And it will be even easier for customers in future.

3. Which concrete targets are aimed to be achieved by the customer reward programme?

Our target is – of course we want to become more efficient in our campaigns. Let me put it this way: there are two greater objectives. The first one is to create loyalty as such – that people say I buy at the sample company because I get points. Second objective that we are able to make use of the data that we generate in our campaigns. And as I already mentioned to become more efficient and effective in all our activities. These are the targets. We have a scorecard where we have certain things related to members and areas defined. For example we want to have xyz per cent active and we want to have a certain proportion of segments in it. Important is that we started the programme and looked more strongly at customer loyalty especially in one to one relationships – that is the segment where we are not one to one at the customer site. Now this has changed a bit. We want to use it now to monitor one to one activities – what actually happens in these companies? The biggest proportions



of the areas are actually from the big companies. And the element we generate data – what do we do with it? That has become more important over time.

4. Were these targets achieved?

Creating customer loyalty works unequally well. But from my point of view we have achieved our targets with the programme for the point in time where we are. We have a high acceptance. We have a high number of members. We work with the data and we are now in a situation – because we have so many customers in and a lot of data – to start to measure. That is very important. To actually look at what the benefit of all that is. The objective of course is to secure or to create turnover. And regarding data we started to broadly make use of the data this year. We now use them in all campaigns. Especially for the autumn season we intensified this. And I cannot say now in all areas what the effect of it was. It also works differently. But in general it is successful. We are building scoring models at the moment where we can derive the likelihood of success in certain target segments that we want to serve but we are only now in a situation to do this.

5. Was it possible to gather more relevant customer information through the customer reward programme compared to the status quo without the programme?

Definitely. Before we did not have or almost not have transactional data. And even if so then only from one to one and there only limited. And now we have incomparably much more transactional data. During the last 12 months we represented a big proportion of the entire business through the programme.

a. ~~If no, what do you think why?~~

b. If yes, to what extent and how satisfied are you with the results?

With the data that we gained, yes, certainly. We never reckoned that we would obtain so much data. It is considerably more and I am particularly satisfied that we eventually do something with the data. To have data is one thing. In the first two years we figured out what do for example events such as double points mean in terms of creating customer loyalty. We came to the conclusion it doesn't help a lot but now we have the data and with that we are very much satisfied.

- Interposed question researcher: OK, we said there are two types of data – on the one hand transactional data – where we said there was nothing before...

Or very much limited

- Interposed question researcher: Or very much limited where we need to know if these limited data are really correct since they are gathered by sales people and did not directly stem from the customer. So is there a data quality issue as well?

Well, we see that a customer has entered bonus codes into the system. Where these codes come from we don't know. That means if a customer talks to his neighbour and enters the codes from his neighbour then we have a certain source of error. There is a certain risk. Also now we have a certain error rate. But we come into a wide scale.

- Interposed question researcher: OK, and how do you assess it in terms of master data?

Customer master data you mean?

- Interposed question researcher: yes

There we also have by all means – I cannot give exact figures now – I guess about 10,000 new sets of data but I don't have the concrete number now. But definitely we have gathered qualified new data, but this is a challenge. We are in Germany and we have data privacy related topics, meaning if a customer enters data into our reward programme these are valid data even if we know the data is wrongly entered. In external communication with him we are not allowed to make use of the correct data. That is a challenge that we have diverse sets of data from one particular customer.

- Interposed question researcher: where does the other data come from – sales people?

Yes, and it is related to one to one companies served by sales people directly who ask how is it possible I maintain the data to a detailed level and now my high-quality master data is disregarded. We keep both sets of data in parallel and make use of both of them internally but for the communication with the customer we need to use the data that was given by the customer. That goes up to the spelling of the name and address of the customer.

- Interposed question researcher: but how does it work? The sales person also only has the data from the customer and cannot measure the size of an acre...

Yes, but I think especially where we have a one to one relationship for many years we have very good insight. Here I trust our data. If there is however a strong deviation the sales person has a good cause to talk to the customer again – for

example to ask the customer where are we now? Don't you cultivate rapeseed anymore?

- Would you consider this a positive effect for approaching the customer?

Yes, of course.

6. Was it possible to gain insight into customer buying behaviour through the customer reward programme?

Definitely. We have analysed rapeseed when we introduced Symetra, the new rape fungicide with the active ingredient Isopyrazam that we already introduced to cereals. We analysed which customers already used Isopyrazam in cereals but also cultivate rapeseed, have already bought rape fungicides, herbicides etc. We set up a matrix that we used to approach the customers.

~~a. If not, what do you think why?~~

- b. If so, to what extent and how satisfied are you with the results?

Super. I am very satisfied. The only thing that I was not completely satisfied with in the past was that we did not use the information to an extent but we are now doing it.

7. Would you consider the customer reward programme successful in terms of getting insight into customer buying behaviour and generating customer information?

Yes, absolutely. I even see other county organisations that jealously look at what we have in place. It is a treasure. But it is only a treasure if one makes something out of it. And that is what we are doing now.

Appendix 5 – Process how interviews were content analysed

